Environmental Assessment

for the

Temporary Debris Handling Facility
2018 California Camp Wildfire

Prepared by the
United States Army Corps of Engineers

In coordination with the
Federal Emergency Management Agency

20 December 2018

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Acronyms and Abbreviations

BMP	Best Management Practice
CalOES	California Office of Emergency Services
COC	Contaminates of Concern
DTSC	California Department of Toxic Substances
EA	Environmental Assessment
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
IPAC	Information for Planning and Consulting
NEPA	National Environmental Policy Act
PAH	Polycyclic Aromatic Hydrocarbons
PCP	Pentachlorophenol
PM	Particulate Matter
RCRA	Resource Conservation and Recovery Act
RWQCB	Regional Water Quality Control Board
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USEPA	United States Environmental Protection Act

APPENDICIES

Appendix A: Presidential Emergency (3409EM) and Disaster Declaration (4407DR) Summaries, State of California Emergency Proclamations (8 and 14 November 2018), and Butte County Emergency Proclamation.

Appendix B: United States Environmental Protection Agency (USEPA) September 2018. Fifth Five-Year Review Report for Koppers, Company, Inc. Superfund Site, Butte County, California. Report documents construction complete in September 2003, along with off-property groundwater remediation complete.

Appendix C: United States Fish and Wildlife Service (USFWS) species list generated on 13 December 2018 (USFWS Information for Planning and Consultation [IPAC]) for Alternative 1, the Expanded Koppers, Inc. Oroville Plant, the preferred alternative and alternative 2, the Reduced Koppers, Inc. Oroville Plant.

Appendix D: United States Fish and Wildlife Service (USFWS) species list generated on 14 December 2018 (USFWS Information for Planning and Consultation [IPAC]) for Alternative 3 South Oroville 4801 Feather River Blvd

1.0 INTRODUCTION

The United States Army Corp of Engineers (USACE) is proposing to set up a temporary debris handling facility to stage, sort, process, and transfer non-hazardous debris generated from the 2018 Camp Wildfire. USACE has prepared this Environmental Assessment (EA) to comply with the National Environmental Policy Act (42 U.S.C § 4321, *et seq.*) and associated regulations (e.g., 40 C.F.R. §§ 1500-1508, USACE Engineer Regulation [ER] 200-2-2).

On 8 November 2018, the Camp Wildfire began burning near Camp Creek Road in Butte County, California. The fire was the most destructive wildfire in California's history, burning nearly 154,000 acres, claiming 85 lives, and destroying nearly 19,000 structures (including 13,972 residences, 528 commercial buildings, and 4,293 other buildings). The fire burned for 17 days with 100 percent containment occurring on 25 November 2018.

The Camp Wildfire caused significant damage in the Town of Paradise and surrounding areas, resulting in an estimated 8 million tons of fire-related debris. Because of the pressing nature of the requirement to remove debris from the impacted area in Butte County and find a suitable place to properly dispose of hazardous material and dispose and/or recycle non-hazardous material, the project proponents are expeditiously looking for suitable sites to accept fire-related debris from the impacted county. Further, the State of California has proclaimed an emergency, declaring that the removal, transportation, and disposal of hazardous and non-hazardous debris from the wildfire is a state priority. USACE was issued a mission assignment under the Stafford Act by the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) on 30 November 2018 to manage the non-hazardous debris handling operations.

1.1 Proposed Project

USACE proposes to establish, operate, and maintain a temporary debris handling facility to stage, reduce, and trans-load non-hazardous fire-related debris from the Town of Paradise and the surrounding communities. The selected site would be limited to accepting non-hazardous concrete and masonry, vehicle husks, and other metal debris. It is anticipated that approximately 3-4 million tons of debris would be processed through the proposed site. Debris would be staged onsite and reduced such that it could be loaded onto trains or trucks to be disposed of or recycled. To the extent practicable, recyclable debris will be processed for recycling and local re-use, rather than disposed.

The State of California will be responsible for removing non-hazardous debris from the impacted area and transporting it to the proposed site. Prior to transporting the non-hazardous debris to the site, the State of California would rinse the ash from the debris to ensure that ash does not fall from the debris during transport to the disposal site. Once onsite, USACE would be responsible for sorting all debris into appropriate categories (e.g., concrete and masonry, vehicle husks, and other metals). The section below discusses the anticipated handling for each debris category.

- Concrete and masonry: Concrete and masonry would be rinsed of ash by the State of California prior to transporting it via truck to the proposed site. Once onsite, the debris would be unloaded and staged until processing. Processing would include crushing the

concrete and masonry, trans-loading it onto rail or trucks for transportation to recycling facilities or other approved locations.

- Scrap metal: All scrap metal would be rinsed by the State of California at the impacted area prior to transporting it to the proposed site. Once at the site, the metal would be appropriately sorted and staged until it is processed. Processing would include shredding the metal and trans-loading it onto rail cars or trucks for transportation to its final disposition site.
- Vehicle husks: Prior to transporting vehicles to the proposed site, all batteries and liquids would be removed and the vehicle debris would be rinsed of ash in the impacted area by the State of California. Vehicle husks would be trucked to the proposed site and unloaded in a staging area. Vehicle processing may include shredding, crushing, and/or sizing (cubing) prior to trans-loading.

Prior to establishing the site, the area proposed for debris storage and processing would be made suitable for the necessary equipment. As needed, additional fill would be brought for leveling and gravel or cement may be installed to create hardened surfaces for processing facilities.

1.2 Federal Declarations and State Proclamations

Presidential Emergency Declaration (3049EM): As a result of the wildfire, the President of the United States issued an emergency declaration (3409EM) under Title V of the Stafford Act providing public assistance to Butte County on 8 November 2018. The emergency declaration also included public assistance for wildfires in Ventura and Los Angeles counties, which are outside the scope of this EA (Appendix A).

Presidential Disaster Declaration (4407DR): On 12 November 2018, the President issued a disaster declaration (4407DR) as a result of the wildfires in Butte, Ventura, and Los Angeles counties. The declaration provided individual and public assistance to the impacted counties (Appendix A).

State of California Emergency Proclamation: On 8 November 2018, the Acting Governor of California issued a local emergency proclamation in response to the wildfire in Butte County (Appendix A).

State of California Emergency Proclamation: On 14 November 2018, the Governor of California issued a local emergency proclamation in response to the wildfires in Butte, Ventura, and Los Angeles counties. The proclamation lifted compliance requirements for various state statutes and regulations that would "prevent, hinder, or delay the mitigation of the effects of the wildfires." As such, the Governor suspended all state statutes, rules, regulations, and requirements related to the "removal, storage, transportation, and disposal of hazardous and non-hazardous waste and debris resulting from the wildfires…that are subject to the jurisdiction of agencies within the California Environmental Protection Agency and the California Natural Resources Agency" (Appendix A).

Butte County Local Emergency Proclamation: On 8 November 2018, the Chief Administrative Officer issued a local emergency proclamation in response to the wildfire in Butte County. As part of the proclamation, Butte County requested that the State of California waive regulations that hinder response and recovery efforts (Appendix A).

1.3 Purpose and Need of the Proposed Project

NEPA requires identification of the project's underlying purpose and need (40 C.F.R 1502.13). The purpose of the project is to provide a cost-effective, environmentally acceptable means to support the State of California in removing debris from the areas of Butte County affected by the devastating Camp Wildfire by establishing, operating, and maintaining a temporary debris handling facility to stage, reduce, and trans-load non-hazardous fire-related debris. Further, the facility must be able to accept and process a significant amount of non-hazardous debris while minimizing impacts to the surrounding community.

The need for the proposed action is to ensure that a debris handling facility of a minimum of 40 acres is established in a very short timeframe to support the state's debris removal operation. The state has determined that the removal, processing, transportation, and ultimate deposition of the debris is beyond its capacity and has requested assistance from the federal government.

1.4 Studies and Reports Incorporated by Reference into this EA

The following studies, reports, and letters were used to develop this EA and are incorporated by reference into this document:

- United States Environmental Protection Agency. 2018. Fifth Five-Year Review Report for Koppers Company, Inc. Superfund Site Butte County, California (included as Appendix B).

1.5 Decisions Required

The Deputy Commander must decide whether the proposed project qualifies for a Finding of No Significant Impact (FONSI) under NEPA, or whether an Environmental Impact Statement (EIS) must be prepared due to potentially significant environmental impacts.

2.0 ALTERNATIVES

2.1 No Action Alternative

NEPA requires the appropriate federal agency (USACE) to analyze a no action alternative (40 C.F.R. § 1502.14 (d)) and alternatives to the proposed action which meet the basic purpose and need of the project. USACE investigated additional sites that could serve as a debris handling facility, including the no action. Under the no action alternative, the state would be responsible for identifying debris processing, staging, transport, and disposal sites on its own. That would include finding sites to dispose of both hazardous and non-hazardous wastes. The state has determined that the magnitude of the devastation is beyond its capacity and therefore, has requested federal assistance to process, transport, and dispose non-hazardous waste. Because of the state's request and the urgency of removing debris from the impacted area, the no action alternative does not meet the purpose and need to facilitate expedient removal of debris and could result in additional adverse effects to public health and safety.

2.2 Rejected Alternatives

USACE has also investigated additional sites to serve as a debris handling station. Although several of these sites could be used to stage and process debris, significant construction would be required to install a railroad spur to facilitate efficient removal of debris after processing and establish an area suitable to handle the amount of debris anticipated. The significant amount of construction required could result in significant impacts to the environment and, most importantly, require a significant amount of time to establish. The amount of time required to construct these alternative sites would result in an unacceptable delay to the state's debris removal mission. Other locations considered and dropped from further analysis include:

- *The Elsey Site.* The Elsey site is located approximately 15 miles from the impacted area along Clark Road in Butte County. It is a small town off the Union Pacific Railway. Elsey is predominately a farming town with a rock quarry. To use the site, land adjacent to the railroad would have to be acquired. In addition, the site would require significant site preparation, including grading and hardening of the land, and a railroad spur would need to be constructed. Construction of the spur would require acquisition of the site, environmental coordination and documentation, including tribal coordination for grading activities, coordination with Union Pacific, and construction. It is expected that the coordination and construction associated with using this site would take approximately 18 months, which is well beyond the timeframe required to begin removing debris from the impacted area.

- *BCJ Sand and Rock Site.* The BCJ Sand and Rock site is located off Wheeler and Slickens Road in Butte County (39°38'25.06" N, 121°35'0.42" W). The site is a defunct quarry that is already impacted by previous rock mining activities. The site is approximately 1.2 miles from the Union Pacific Railroad and not adjacent to a rail spur. Similar to the Elsey site, a rail spur would need to be constructed. Construction of the site would require USACE to acquire the site, conduct environmental coordination and documentation, coordinate with Union Pacific, and construct the needed rail. It is expected that it would take approximately 18 months to make the site operable, which is well beyond the timeframe required to begin removing debris from the impacted area.

- *Table Mountain Stone Site.* The Table Mountain Stone site is located just off Table Mountain Blvd in Oroville, CA. This site has a current commercial concern currently conducting operations on the site. Although this site has a rail spur that could be utilized, the acreage of the site, at 37.5 acres, is not enough to conduct all of the staging and processing that would be required for the expected amount of debris.

- *Private Property Lot in Paradise.* This private lot in Paradise is located in a burned area with many burned trees still standing on the lot. There is no access to the railway and the site has less than 40 acres available, which would be too small to handle the amount of debris expected. There would be considerable site preparation required in order to make the site ready to accept and process debris. It is expected it would take more than 6 months to make the site operable, which is beyond the timeframe required to begin removing debris from the impacted area.

- *Barber Industrial Site.* This former location of a Diamond Match, Co. in Chico, CA is approximately 15 miles from the affected area. This site was previously contaminated

with various hazardous substances as a result of the industrial operations on the site. The property has since been remediated. Although the site has a rail spur and was large enough to accommodate the amount of debris expected, during public scoping it was discovered that using the site would cause impacts to the adjacent neighborhood and commercial concerns would be significant.

- *Neal Road Site.* This site is located on Neal Road, Paradise, California. This site is approximately 95 acres and is adjacent to the Neal Road Recycling and Waste Facility on land surrounding the landfill. The site lies within an Energy and Waste Facility Overlay Zone with gentle topography and seasonal creeks. This site lacks rail access and is expected to be heavily utilized by local contractors in private cleanup efforts.

2.3 Alternative 1 Expanded Koppers, Inc. Oroville Plant (Preferred Alternative)

2.3.1 Project Location

The Koppers, Inc Oroville Plant Industrial Site covers a total of 205 acres, approximately 110 of which USACE is proposing to utilize, in an area zoned as heavy industrial and commercial in the southern part of Oroville, Butte County (Figure 1). The site has industrial/commercial concerns distanced from, but surrounding it, and rail access just to the east. The rail access will facilitate moving processed debris off the site and to final disposal/recycle sites, reducing the number of trucks required to transport the debris. The site is approximately 3,000 feet to the east of the Feather River and is located in the Feather River flood plain. The nearest residential area is more than 2,500 feet from the site. The heavy industrial zoning classification allows for a full range of industrial uses, including operations that necessitate the storage of large volumes of hazardous or unsightly materials, or those that produce dust, smoke, fumes, odors, or produce noise at levels which would affect surrounding uses. Although no hazardous waste would be accepted at the expanded Koppers, Inc. Oroville Plant temporary debris handling facility, the noise and dust that could be produced from debris processing is allowable at this location, based on the zoning of Heavy Industrial.

The Hutchinson Lumber Mill operated at the site that would become the Koppers, Inc. Oroville Plant Site from 1920 until the National Wood Treating Company purchased the property in 1948. The National Wood Treating Company began wood treatment operations in 1948 and these operations continued under different companies until 2001.

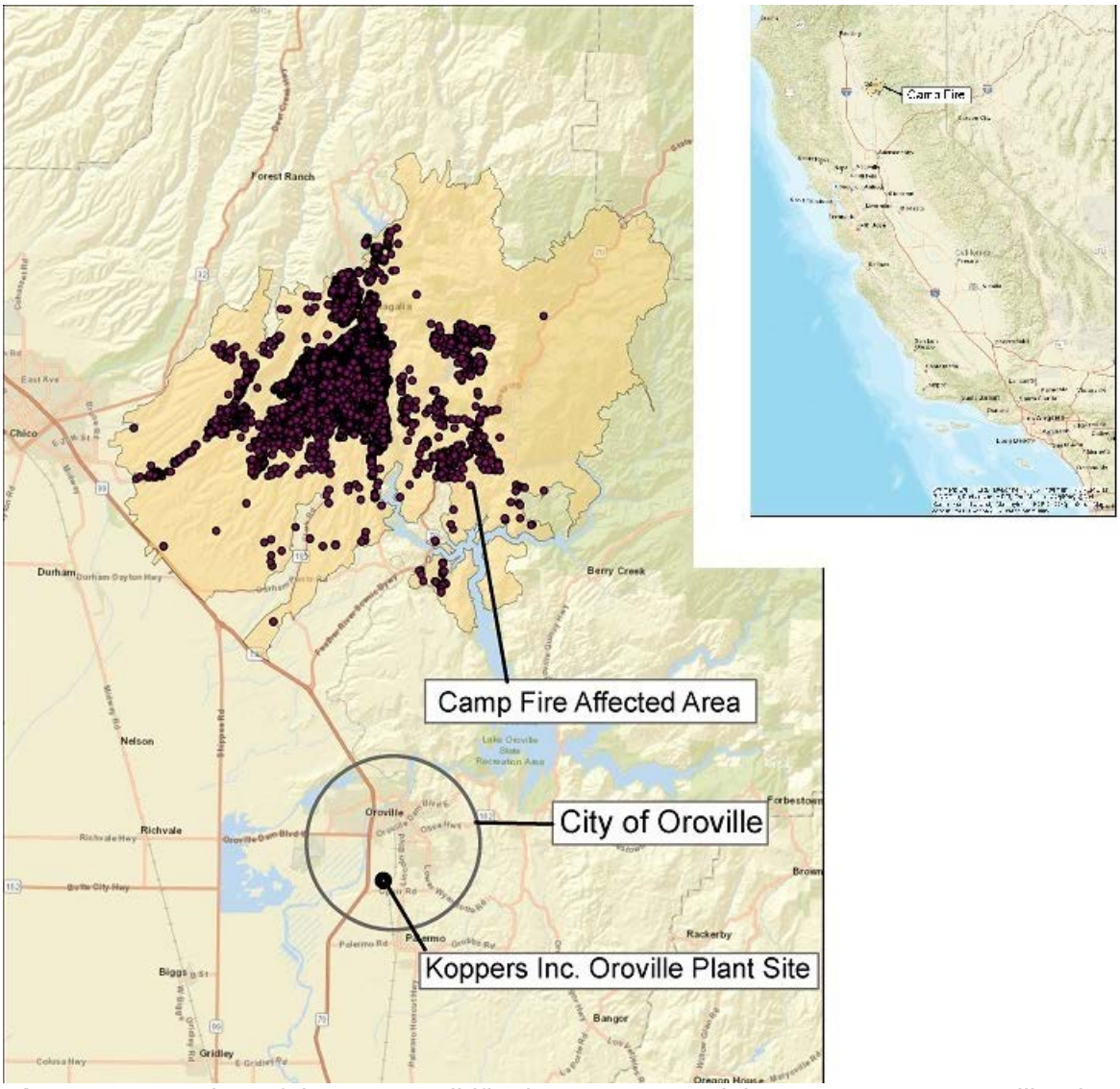

Figure 1. Overview of the Camp Wildfire impact area and the Koppers, Inc. Oroville Plant Site.

Compounds used in the treatment of wood include pentachlorophenol (PCP), dioxins, isopropyl ether, dibenzofuran, polycyclic aromatic hydrocarbons (PAH), barium, copper, chromium, creosote, and arsenic. The most abundant of these chemicals at the site is PCP. A fire at the site in 1963 released approximately 20,000 gallons of PCP into the soil. Another fire in 1987 released high levels of dioxins. In 1973, the Regional Water Quality Control Board (RWQCB) discovered PCP in wells near the site that supplied residential drinking water.

The United States Environmental Protection Agency (USEPA) designated the Koppers, Inc Oroville Plant site as a superfund site on 21 September 1984. In order to address soil and groundwater contamination and to protect long-term human health, as well as the environment, USEPA implemented the following remedy; extraction of contaminated soils, debris, and sediments; disposal into onsite landfill cells and capping; extraction and treatment of (onsite and offsite) groundwater contamination with enhanced in situ bioremediation; product recovery; providing an alternate domestic water supply to downgradient impacted community members; and institutional controls that restrict use of the property. Additionally, the USEPA

required implementation of deed restrictions to prevent access to groundwater, surface disturbances, and the addition of new sources of surface water into the groundwater.

Excavating Soils in the Koppers, Inc. Oroville Plant Site

Two soil disposal cells were constructed on site, called Soil Disposal Cell 1 and 2, which were designed and built as Resource Conservation and Recovery Act (RCRA) class 1 landfills. Dioxin contaminated soil was placed into Soil Disposal Cell 1. Soil Disposal Cell 2 is adjacent to Cell 1 and both are near the northern boundary of the site. Approximately 200,000 cubic yards of contaminated soil and building materials were placed into Cell 2 and both cells were capped and are required to be maintained. In September 2003, Beazer (the responsible company) and the California Department of Toxic Substances Control (DTSC) completed negotiations on a land use covenant intended to protect current and future users of the site. The property can only be utilized for industrial/commercial uses.

Groundwater Pumping and Treating

In March 1986, 34 residences downgradient to the Koppers, Inc. Oroville Plant began to be connected to the Oroville-Wyandotte Irrigation District (now South Feather Water and Power Agency) water supply. Two groundwater pump-and-treat systems were installed for the eastern onsite plume of PCP that included two extraction wells and two injection wells. The injection wells re-inject treated water back into the groundwater system. Approximately two miles south of the site, an offsite groundwater treatment system was constructed. This system included two extraction wells, a treatment plant, two injection wells, and approximately 1,500 feet of pipelines.

On 28 December 1995, USEPA approved the suspension of the offsite remediation system for groundwater monitoring, as concentrations of contaminates of concern (COC) were below cleanup standards. In 2007, USEPA approved the deconstruction and removal of the offsite groundwater extraction system. All offsite groundwater remediation was ended in 2009, after PCP was not detected for four consecutive quarters of monitoring. Onsite monitoring wells, operation and maintenance of onsite groundwater extraction, and onsite treatment and reinjection systems are still required.

Ongoing Remediation Operations and Maintenance Activities

The onsite Soil Disposal Cells are capped and must be maintained, along with the onsite groundwater extraction, treatment and re-injection wells. Additionally, there are six pairs of monitoring wells installed around the perimeter of the Soil Disposal Cells that will be maintained and samples from these wells will be taken annually. Recorded institutional controls both restrict groundwater extraction and limit land use to industrial/commercial use. Access controls are in place at the site to prevent tampering with controls and vandalism. In the last Five-Year Review by USEPA, issued on 26 September 2018, no issues or negative findings were identified.

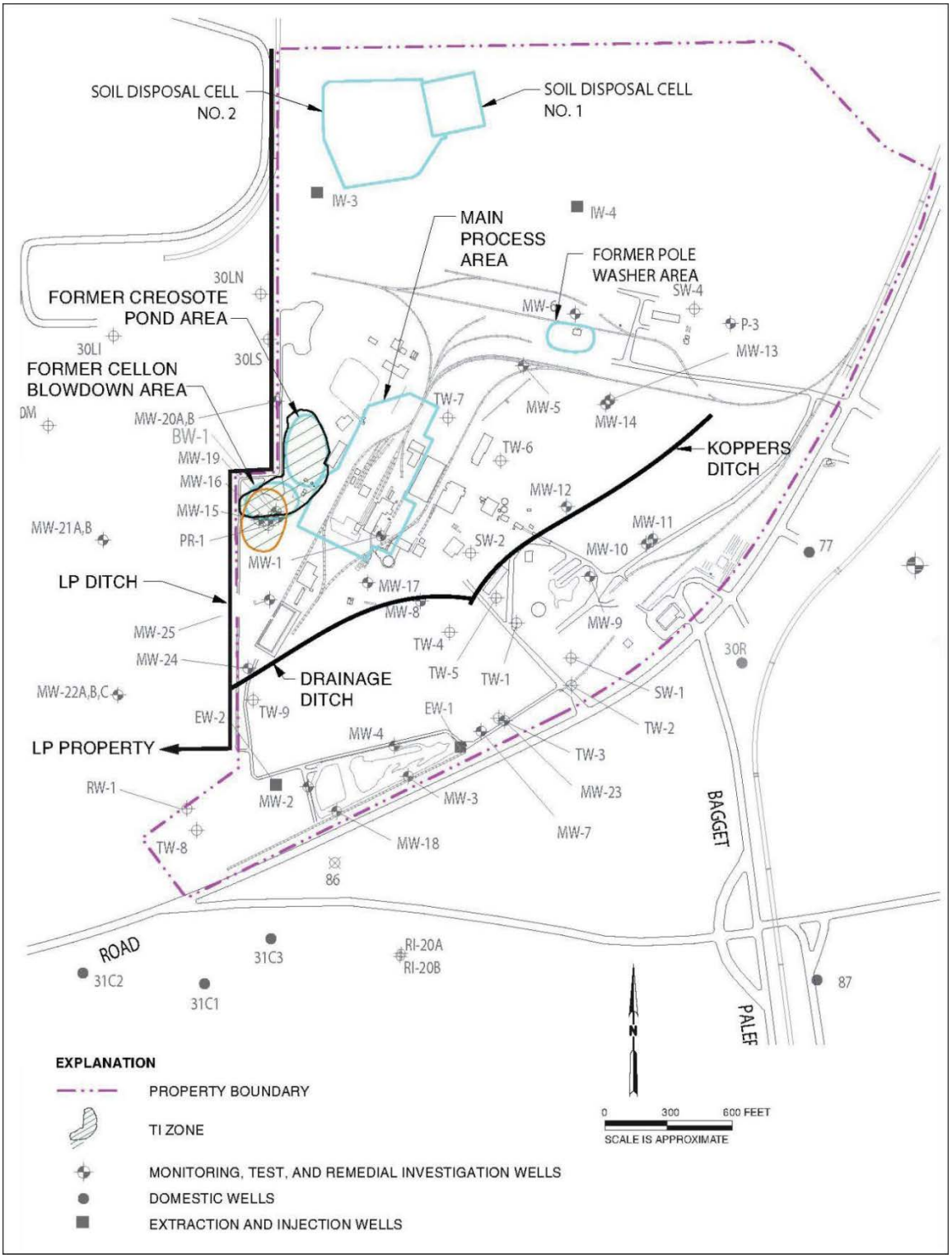

Figure 2. Koppers, Inc. Oroville Plant Industrial Site showing soil disposal cells, creosote pond, cellon blowdown, and main processing areas (source: USACE and USEPA, as provided in the 2018 Fifth Five-Year Review 2013 through 2017).

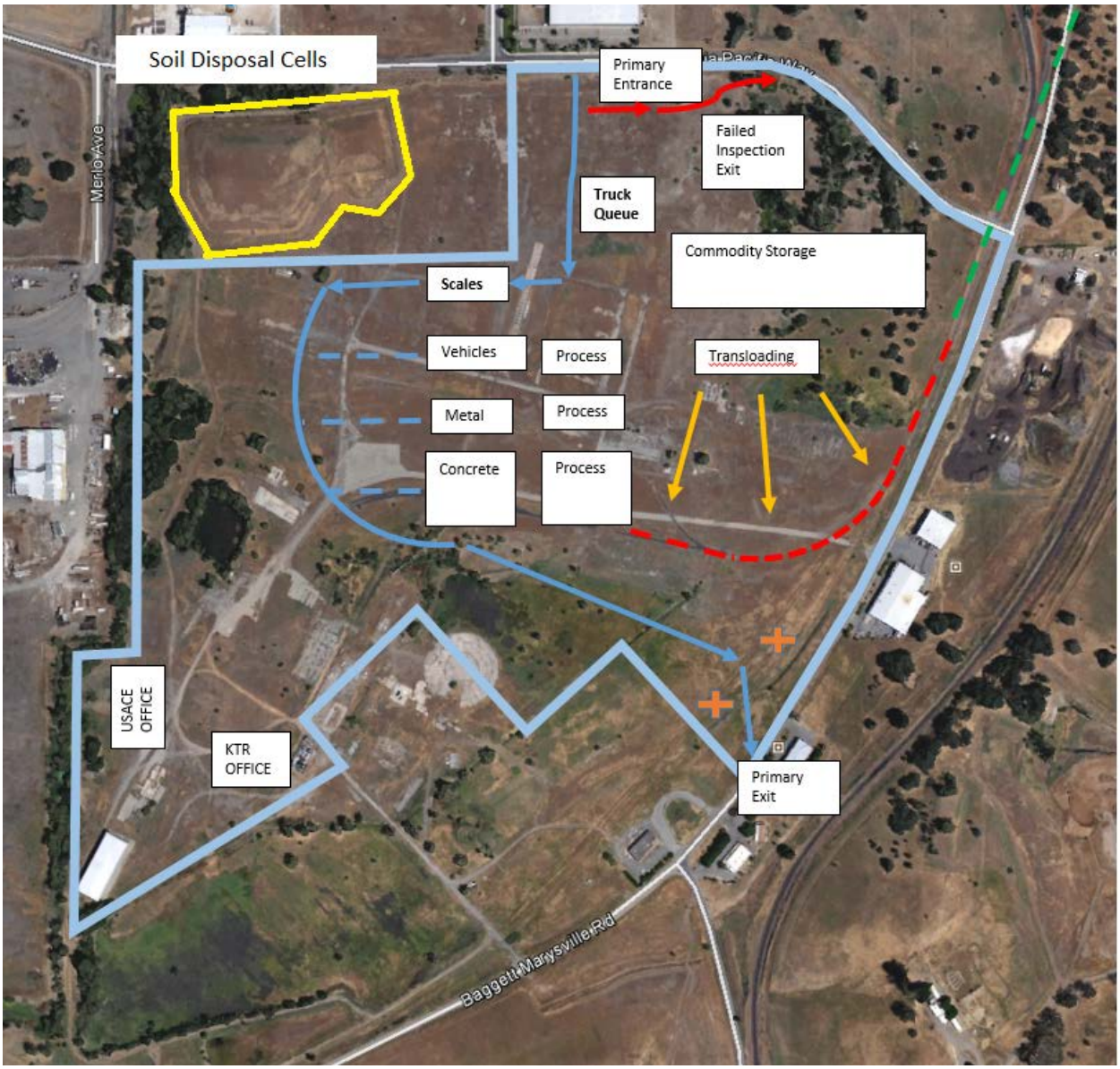

Figure 3. Conceptual design of the Expanded Koppers, Inc. Oroville Plant debris handling facility, including transportation ingress and egress routes. Red dashed line represents the rail spur that will need to be installed. Green dashed line represents the rail spur that is currently onsite.

2.3.2 Anticipated Debris Transport to the Koppers, Inc Oroville Plant Site

It is expected that approximately 3 million tons of debris will be handled at the temporary debris handling facility. Trucks will be carrying approximately 10 to 20 tons of debris, depending on the truck type. This would result in approximately 150,000 truckloads accessing the site over a period of 1 to 2 years. However, transport of debris to the site would be the responsibility of the State of California and the number of truckloads, route(s) to the site, and project duration will be driven by the state's debris removal operations. Trucks would likely leave the affected area with debris via either California State Highway 70 or California State Highway 191. They would likely enter via Georgia Pacific Way and exit via Baggett Marysville Road to Ophir Road.

The State of California would develop and utilize a traffic control plan to ensure the safety of the surrounding community along the transportation corridor.

2.4 Alternative 2 Reduced Koppers, Inc. Oroville Plant

2.4.1 Project Location

The Reduced Koppers, Inc Oroville Plant is in the same location as the Expanded Koppers, Inc. Oroville Plant location, however this site is approximately 61 acres of the 205 acres that make up the entire Koppers, Inc. site. All information from the Expanded Koppers, Inc. Oroville Plant applies to Alternative 2. Additionally, the transportation corridor would not change. Figure 4 illustrates the Reduced Koppers, Inc. Oroville Plant Site.

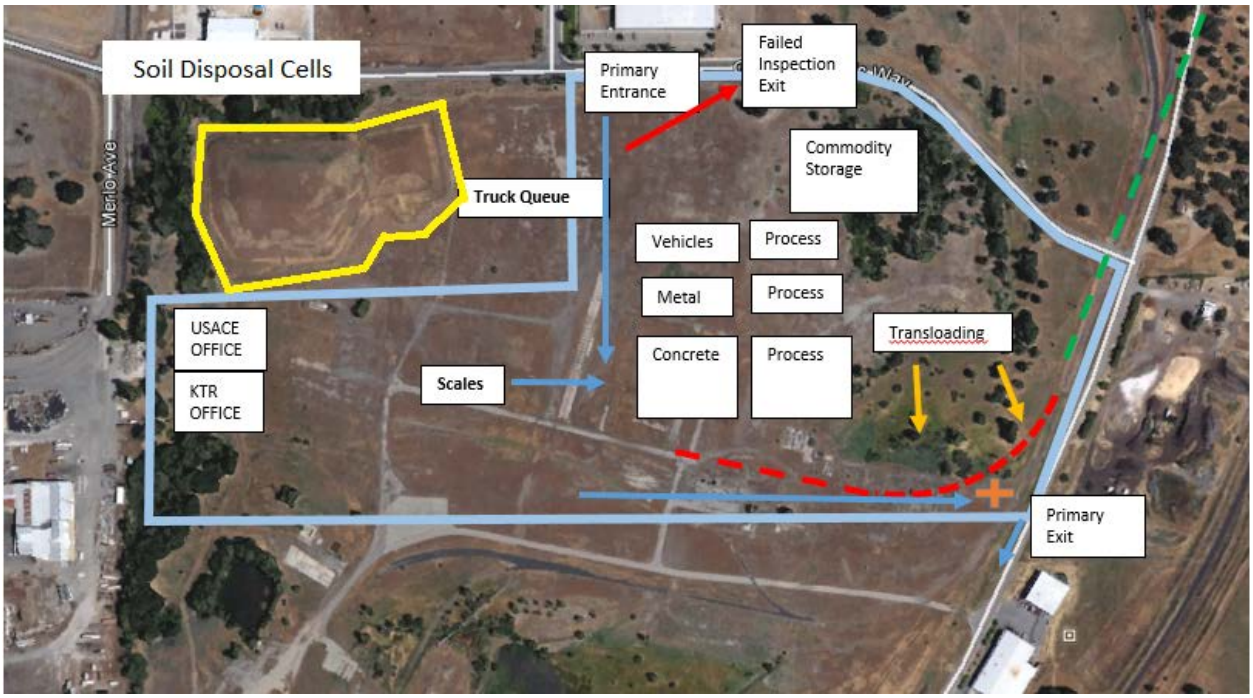

Figure 4. Conceptual design of the Reduced Koppers, Inc. Oroville Plant debris handling facility, including transportation ingress and egress routes. Red dashed line represents the rail spur that would need to be installed. Green dashed line represents the rail that is currently onsite.

2.5 Alternative 3 South Oroville 4801 Feather River Blvd

2.5.1 Project Location

The South Oroville 4801 Feather River Site covers approximately 45 acres, in an area zoned as heavy industrial/commercial in the southern part of the City of Oroville, Butte County, California (Figure 5). The site has commercial and industrial concerns adjacent to the north, rail access

just to the north, and California Highway 70 adjacent to the west. The rail access would facilitate moving processed debris off the site and to final disposal/recycle sites, reducing the number of trucks required to transport the debris. The site is approximately 2,000 feet to the east of the Feather River, located within the Feather River flood plain and is approximately a mile from the nearest residence. This site is zoned as Heavy Industrial. Although no hazardous waste would be accepted at the South Oroville 4801 Feather River Site, this zoning classification would allow for any dust and noise that may be produced from debris processing.

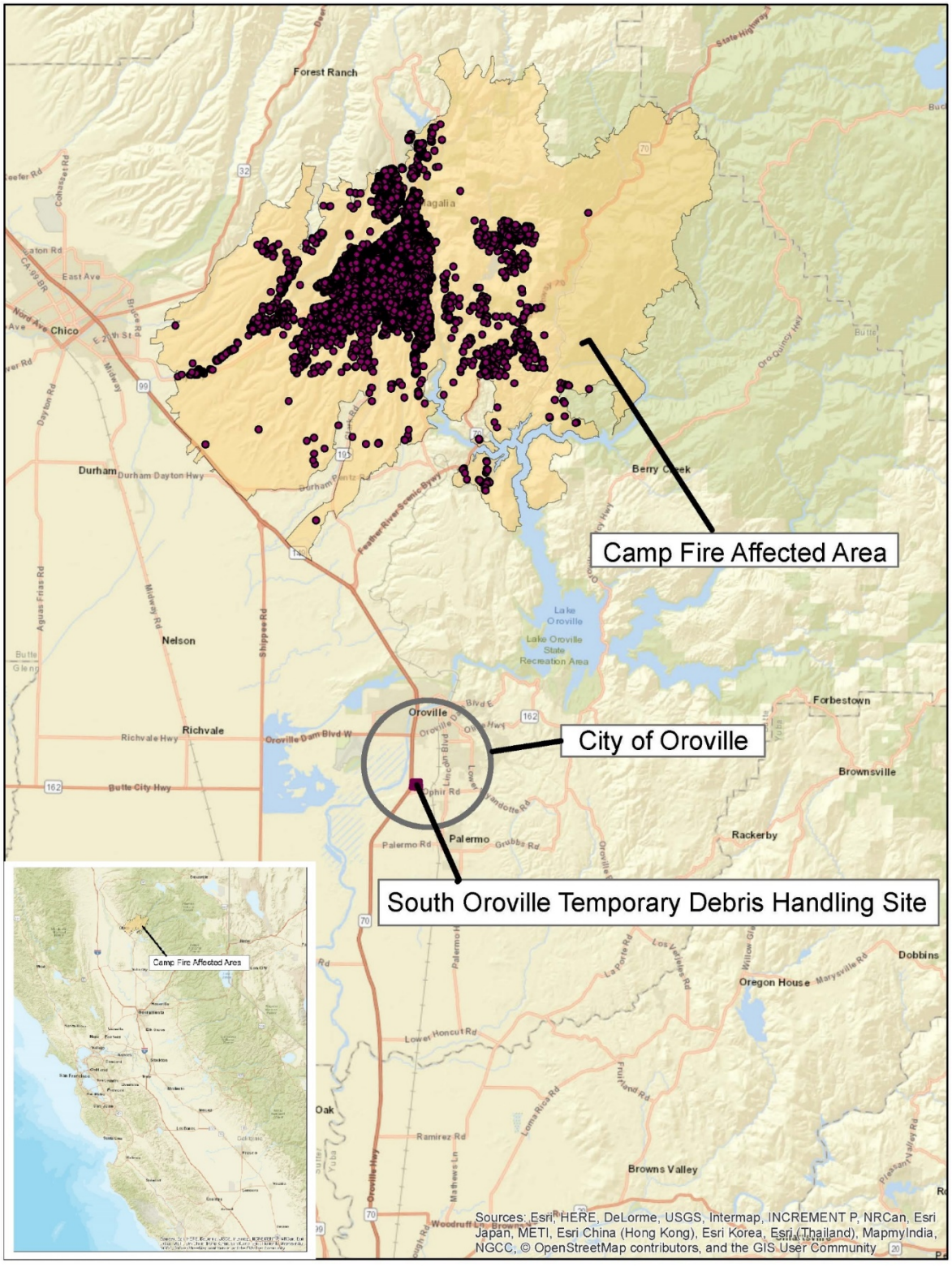

Figure 5. Overview of the Camp Wildfire impact area and the South Oroville 4801 Feather River site.

2.5.2 Anticipated Debris Transport for the South Oroville 4801 Feather River Site

Although the State of California, as previously mentioned, would be responsible for removing and transporting debris from the impacted area, trucks would likely follow either California State Highway 70 or California State Highway 191 from the impacted area and enter and exit the South Oroville 4801 Feather River Site through Feather River Blvd. Figure 6 shows the possible site setup. As with the Expanded Koppers, Inc. Oroville Plant site, the State of California would implement a traffic control plan to ensure the safety the safety of the surrounding community.

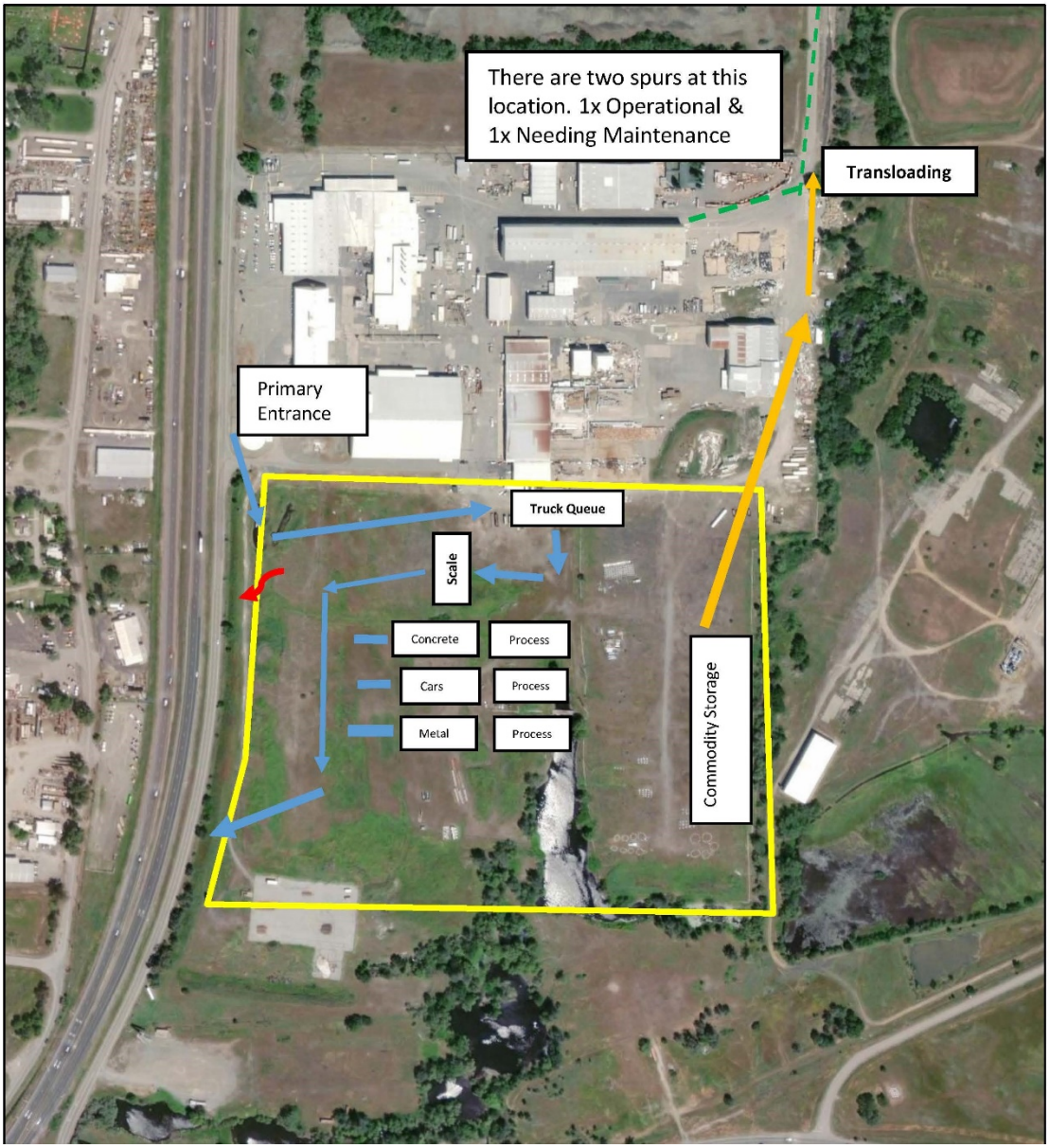

Figure 6. Conceptual setup of the South Oroville 4801 Feather River Blvd. site

3.0 ENVIRONMENTAL EFFECTS

This section discusses environmental resources in the project areas and potential impacts of the alternatives considered.

3.1 Resources Not Considered in Detail

Some resources were eliminated from further analysis in this EA because the effects were negligible. This is true for either the no action alternative or any of the listed action alternatives.

- Aesthetics: Changes to the character of the landscape will be both temporary and negligible as the proposed project is for a temporary debris handling site. All of the alternatives are in areas without aesthetic resources.
- Land Use and Socioeconomics: All of the proposed alternatives are in area zoned for heavy industrial use. None of the alternatives represent a change to the existing land use or socioeconomics.
- Public Utilities: There are no activities that would affect public utilities that go through any of the alternatives. As such, there will be no effects to public utilities as a result of the proposed project.

3.2 Soil Quality

3.2.1 No Action Alternative

Under the no action alternative, USACE would not establish, operate, and maintain a temporary debris handling facility. The State of California would be responsible to find, establish, operate and maintain debris processing facilities without federal assistance. The need to establish and operate these sites would not change, however the locations of such sites is unknown. The effects to soils under this alternative are expected to be similar to any of the action alternatives.

3.2.2 Expanded Koppers, Inc. Oroville Plant (Preferred Alternative)

As discussed above, soils at the Expanded Koppers, Inc. Oroville Plant Site were contaminated with arsenic, PCP, dioxins, and other toxins. The site underwent a significant remediation, which involved removing and disposing of almost 200,000 cubic yards of contaminated soil and building materials. All of the contaminated soils remain onsite in two Soil Disposal Cells. The Cells are regularly tested to ensure there is no migration of COCs. Subsequent monitoring of the soil has shown the area was restored to industrial/commercial criteria.

This site would facilitate only temporary storage, processing, and trans-loading non-hazardous materials through the temporary debris handling facility. Therefore, the soil at the site would not be exposed to hazardous substances that could result in contamination. Storage, processing, and trans-loading would likely occur on hardened surfaces, which would further protect soils from incidental contamination or erosion. Further, best management practices (BMPs) would be implemented to protect soil from erosion and contamination.

3.2.3 Reduced Koppers, Inc. Oroville Plant

The Reduced Koppers, Inc. Oroville Plant Site is within the footprint of the Expanded Koppers, Inc. Oroville Plant and all of the conditions at this site are the same as at the Expanded Koppers, Inc. Oroville Plant. The lack of impacts would remain the same.

3.2.4 South Oroville 4801 Feather River Blvd

Because the proposed project would only process non-hazardous debris, the soil at the site should not be exposed to hazardous substances that could result in contamination. Storage, processing, and trans-loading would likely occur on hardened surfaces which would further protect soils from incidental contamination or erosion. Further, erosion control BMPs would be implemented to protect soil from erosion and contamination.

3.2.5 Avoidance and Minimization Measures

In order to minimize potential effects to soils, the following BMPs would be implemented:

- *Soil BMP-1:* Prior to establishment of a temporary debris handling facility, a soil erosion and water quality control plan will be prepared. The plan will identify best management practices and measures typical of constructions sites to protect soil erosion and water quality. Measures may include, but are not limited to installation of silt fences, and/or straw wattles.
- *Soil BMP-2:* Prior to using the site, the in-situ soils would be sampled to determine the current concentrations of compounds in the soil. Soil sampling would also be conducted when operation of the site is complete. The soil samples will be used to determine the soil quality at the site prior to returning the site to its owner. Should soil samples indicate that remedial action is required prior to returning the site, the soils would be restored to the conditions in which the site was initially acquired.
- *Soil BMP-*3: The Soil Disposal Cells at Koppers, Inc. sites would be fenced in and protected from construction activities. Personnel working at the site would not be allowed to access the Cells. A safety officer would be onsite to ensure the Cells are not accessed by workers. The Soil Disposal Cells would be made available for USEPA representatives and the DTSC for inspection and maintenance as necessary.

With the above listed BMPs in place, there would be no adverse effects to soils.

3.3 Water Quality

3.3.1 No Action Alternative

Under the no action alternative, USACE would not establish, operate, and maintain a temporary debris handling facility. The State of California would be responsible to find, establish, operate

and maintain debris processing facilities without federal assistance. The need to establish and operate these sites would not change, however the locations of such sites is unknown. The effects to water quality under this alternative are expected to be similar to any of the action alternatives.

3.3.2 Expanded Koppers, Inc. Oroville Plant (Preferred Alternative)

As discussed above, groundwater beneath the site was contaminated with PCP and dioxins. As a result of the contamination, groundwater extraction is prohibited, as is the introduction of any surface water. The site is approximately 3,000 feet to the east of the Feather River and is separated from the river by California State Highway 70. There are two drainage ditches on the site, Koppers Ditch and L-P Ditch. The Koppers Ditch drains into the L-P Ditch, which in turn drains into a pond west of the site. Groundwater will be protected and surface water prevented from flowing underground with the implementation of BMPs.

3.3.3 Reduced Koppers, Inc. Oroville Plant

As discussed above, the Reduced Koppers, Inc. Oroville Plant is within the footprint of the Expanded Koppers, Inc. Oroville Plant and conditions with water are identical. The implementation of the BMPs to prevent effects to both groundwater and surface water.

3.3.4 South Oroville 4801 Feather River Blvd

This site is located approximately 2,000 feet to the east of the Feather River and is separated from the river by California State Highway 70. There is a pond on the southern end of the site that extends nearly halfway across the site to the north. Groundwater in the area has been impacted by contamination produced at other sites and the nature of the pond is unknown. The pond would need to be protected from debris throughout the use of the site. Groundwater and surface would be protected with the implementation of BMPs.

3.3.5 Avoidance and Minimization Measures

The following BMPs will be implemented to protect water quality.

- *Water Quality BMP-1:* A stormwater pollution prevention control plan would be prepared and implemented to protect surrounding water courses from runoff.
- *Water Quality BMP-2*: As discussed in *Soil BMP-1* and *Hazardous Substances BMP-1*, a soil erosion and water quality control plan and spill protection and response plan, will be prepared to protect water quality from soil erosion, petroleum products, and other pollutants.
- *Water Quality BMP-3*: Groundwater resources will not be utilized for construction, operation, or decommission and site restoration associated with the proposed action.

3.4 Air Quality

Butte County is a non-attainment area for particulate matter (PM), both $PM_{2.5}$ and PM_{10}, ozone (state) and 8-hour ozone (federal).

3.4.1 No Action Alternative

Under the no action alternative, the State of California would be required to operate debris handling facilities without federal assistance. As a result, the impacts under the no action alternative would likely be equivalent to any of the action alternatives, however the locations of the sites would be unknown.

3.4.2 Expanded Koppers, Inc. Oroville Plant (Preferred Alternative)

Operation of the Expanded Koppers, Inc. Oroville Plant would generate $PM_{2.5}$ and PM_{10} from processing the debris. However, as a result of the emergency proclamations discussed above, the Governor of California has suspended state statutes, rules, regulations, and requirements. Regardless, USACE is concerned with the potential for $PM_{2.5}$ and PM_{10} to affect sensitive receptors. Additionally, the transportation of debris to and from the site can affect air quality, but this effect will be considered baseline, as the debris will be moved regardless of whether the federal government is involved. There are no sensitive receptors within more than 2,500 feet of the Koppers, Inc. Oroville Plant, however, USACE would implement BMPs to ensure minimal impacts to air quality.

3.4.3 Reduced Koppers, Inc. Oroville Plant

As the Reduced Koppers, Inc. Oroville Plant is within the Expanded Koppers, Inc. Oroville Plant footprint, the effects to air quality from the use of this alternative would be identical to the Expanded Koppers, Inc. Oroville Plant site.

3.4.4 South Oroville 4801 Feather River Blvd

The utilization of the South Oroville 4801 Feather River Blvd. site would produce similar effects to air quality, as the same equipment would be in use at this site as the previously evaluated sites. As with both Koppers, Inc. sites, there are no sensitive receptors near the site and BMPs would be utilized to minimize effects to air quality.

3.4.5 Avoidance and Minimization

The following BMPs will be implemented to minimize the impacts to air quality.

- *Air Quality BMP-1*: Air quality will be monitored around the perimeter of the chosen alternative. Air quality will be monitored prior to construction to establish and baseline and during construction and operation of the sit to determine impaction to air quality.
- *Air Quality BMP-2*: An air quality control plan will be developed to identify air quality monitoring requirements and measures to reduce fugitive dust and emissions generated should data indicate $PM_{2.5}$ and/PM_{10} are elevated above ambient conditions. Additional practices may include temporarily ceasing particulate matter-generating activities until air quality improves or finding alternative methods for preforming required activities that reduce air quality impacts.

- *Air Quality BMP*-3: Any air quality data collected will be made available to the community via the World Wide Web.

3.5 Noise and Vibration

3.5.1 No Action Alternative

Under the no action alternative, the State of California would still be required to remove, process, and dispose or recycle all debris. Although the sites they would choose are unknown, the effects to noise and vibration should be expected to be similar to any of the action alternatives.

3.5.2 Expanded Koppers, Inc. Oroville Plant (Preferred Alternative)

The operation of the Expanded Koppers, Inc. Oroville Plant would generate noise and vibration that did not previously exist. Most of the noise and vibrations would come from truck traffic entering and exiting the site in the heavy industrial zone, unloading the trucks, moving debris around the site, processing the debris (i.e., crushing concrete and shredding metal), and trans-loading the debris into rail cars and trucks. Processing the debris is anticipated to generate the highest noise levels and, while there are no sensitive receptors within 2,500 feet the site, BMPs would be employed to minimize any impacts to noise.

3.5.3 Reduced Koppers, Inc. Oroville Plant

The effects to noise at the Reduced Koppers, Inc. Oroville Plant would be identical to the effects listed under the Expanded Koppers, Inc. Oroville Plant site. The same levels of noise will be expected, and BMPs would be implemented to reduce any impacts to noise.

3.5.4 South Oroville 4801 Feather River Blvd

The activities that are expected to produce the most noise at the Expanded and Reduced Koppers, Inc. Oroville Plant sites will be the same at the South Oroville 4801 Feather River Blvd site. The South Oroville 4801 Feather River Blvd site is also in an area zoned as Heavy Industrial, and there are no sensitive receptors near the site.

3.5.5 Avoidance and Minimization

The following BMPs will be implemented to minimize the impacts to noise.

- *Noise BMP-1:* As necessary, onsite noise buffers will be constructed to offset noise.
- *Noise BMP*-2: During the initial stages of utilizing any of the action alternatives, noise levels will be monitored near the perimeter of the site to determine the noise levels. If noise levels are elevated such that they exceed the noise ordinance, noise-generating operations, such as crushing concrete and shredding metal will be limited to the hours of 0600 and 2000 (6:00 am and 8:00 pm). Should noise monitoring indicate the operation

of the site does not result in excessive noise levels to residents, noise-generating operations will likely occur during the night.

3.6 Traffic

3.6.1 No Action Alternative

Under this alternative, heavy truck traffic would be expected, as the State of California would still be utilizing significant numbers of trucks to move debris and the routes out of the impacted area are limited. Therefore, impacts from this alternative are expected to be comparable to any of the action alternatives.

3.6.2 Expanded Koppers, Inc. Oroville Plant (Preferred Alternative)

Heavy truck traffic would be routed down from the Paradise area on either California State Highway 70 or California State Highway 191. Trucks could travel into the Expanded Koppers, Inc Oroville Plant from Georgia Pacific Way and exit via Baggett Marysville Road to Ophir Road. The use of a heavy industrial zoned area would minimize impacts to the surrounding community. USACE will work closely with the State of California, Butte County, and the City of Oroville to develop a transportation corridor plan to ensure the safety of the community and surrounding resources. Although it is expected increased traffic could be a nuisance to the community, every effort will be made to mitigate the impacts to traffic.

3.6.3 Reduced Koppers, Inc. Oroville Plant

Impacts to traffic as a result of using the Reduced Koppers, Inc. Oroville Plant will be identical to the impacts from utilizing the larger site, including the ingress and egress routes.

3.6.4 South Oroville 4801 Feather River Blvd

A significant number of trucks will be necessary to remove the non-hazardous debris from the impacted area, but the use of an industrial zone would minimize impacts to the surrounding community. USACE will work closely with the State of California, Butte County, and the City of Oroville to develop a transportation corridor plan to ensure the safety of the community and surrounding resources. Although it is expected increased traffic could be a nuisance to the community, every effort will be made to mitigate the impacts to traffic.

3.6.5 Avoidance and Minimization

The following BMPs will be implemented to minimize impacts to traffic.

- *Traffic BMP-1:* To the extent practicable, heavy truck traffic would not be allowed in residential areas. All efforts would be made to utilize industrial areas.
- *Traffic BMP-*2: A traffic control plan would be prepared to ensure the safety of the surrounding community. The traffic control plan would be prepared in coordination with the State of California, and FEMA. The City of Oroville and Butte County would have an

opportunity to review the traffic control plan. The plan will be strictly enforced throughout the duration of the debris removal operations.

3.7 Cultural and Historic Resources

3.7.1 No Action Alternative

Under this alternative, the State of California will be required to establish and operate debris handling facilities and those sites are unknown. Those sites could have impacts to cultural and historic resources, but that determination is beyond the scope of this EA.

3.7.2 Expanded Koppers, Inc. Oroville Plant (Preferred Alternative)

There are no potentially historic structures present on the Expanded Koppers, Inc. Oroville Plant. In order to prevent any potential impacts to buried cultural resources, no ground-disturbing activities will take place on the site. Imported fill and gravel may be brought in for site leveling.

3.7.3 Reduced Koppers, Inc. Oroville Plant

This site is within the boundaries of the Expanded Koppers, Inc. Oroville Plant, therefore the impacts would be identical as the preferred alternative and the same protections will be employed.

3.7.4 South Oroville 4801 Feather River Blvd

There are no potentially historic structures on the South Oroville 4801 Feather River Blvd site. To prevent any potential impacts to buried cultural resources, no ground-disturbing activities will take place on the site. Any site leveling necessary will be accommodated by importing fill and gravel.

3.7.5 Avoidance and Minimization

For all action alternatives, there will be no ground-disturbing activities.

3.8 Special Status Species

3.8.1 No Action Alternative

The State of California will remove debris from the impacted area and processing sites that may be chosen for that effort are unknown. Therefore, the impacts to special status species are unknown under this alternative.

3.8.2 Expanded Koppers, Inc. Oroville Plant (Preferred Alternative)

A USFWS species list was generate on 14 December 2018, using the USFWS' Information for Planning and Consultation (IPAC) website (species list provided as Appendix C). The species list identified eight threatened or endangered species that may be present within the 7.5-minute quadrangle map in which the Expanded Koppers, Inc. Oroville Plant is located; critical habitat was not identified on the site. The species include:

- Yellow-billed cuckoo (*Coccyzus americanus)*, threatened
- Giant garter snake (*Thamnophis gigas*), threatened
- California red-legged frog (*Rana draytonii*), threatened
- Delta smelt (*Hypomesus transpacificus*), threatened
- Valley elderberry longhorn beetle (*Desmocerus californicus*), threatened
- Vernal pool fairy shrimp (*Branchinecta lynchi*), threatened
- Vernal pool tadpole shrimp (*Lepidurus packardi*), endangered
- Slender Orcutt grass (*Orcuttia tenuis*), threatened

The giant garter snake, California red-legged frog, Delta smelt, vernal pool fairy shrimp, vernal pool tadpole shrimp, and slender Orcutt grass require aquatic habitat for all or part of their life history. Because the Expanded Koppers, Inc. Oroville Plant site lacks aquatic habitat required for these species, there would be no effects to these species.

The yellow-billed cuckoo breeds in river systems west of the Rocky Mountains and requires riparian habitat of relatively large area, generally greater than 20 hectares of contiguous riparian habitat. It generally spends winters in woody lowland vegetation near fresh water. Since these conditions do not exist in the area surrounding the Koppers, Inc. Oroville Plant site, there would be no effects to the yellow-billed cuckoo.

The Valley elderberry longhorn beetle relies on the elderberry plant (*Sambucus* species) for its entire life cycle. Any elderberry plants currently on the Koppers, Inc. Oroville Plant site would be examined for beetle holes. Any shrubs with beetle holes that must be destroyed would be mitigated for by purchasing credits at a Valley elderberry longhorn beetle site at a USFWS determined ratio.

Migratory Birds

The Expanded Koppers, Inc. Oroville Plant Industrial Site is located within the Pacific Flyway, which provides habitat for migratory birds. The site is surrounded by industrial land which provides little foraging habitat for migratory birds. Some trees and shrubs are present in the interior of the site; although they are unlikely to provide suitable nesting habitat for migrating birds, it is not certain at this time if migratory birds may utilize the trees for nesting. As discussed in the best management practices below, migratory bird nesting surveys will be conducted at the appropriate times to determine if migratory bird nests are present. Implementing the best management practices will ensure that potential impacts to migratory birds are less than significant.

3.8.3 Reduced Koppers, Inc. Oroville Plant

As the Reduced Koppers, Inc. Oroville Plant is within the footprint of the expanded site, effects to special status species and migratory birds will be identical.

3.8.4 South Oroville 4801 Feather River Blvd

A USFWS species list was generated on 16 December 2018, using the USFWS' Information for Planning and Consultation (IPAC) website (species list provided as Appendix B). The species list identified eight threatened or endangered species that may be present within the 7.5-minute quadrangle map in which the South Oroville Industrial Site is located; critical habitat was not identified on the site. The species include:

- Yellow-billed cuckoo (Coccyzus americanus), threatened
- Giant garter snake (Thamnophis gigas), threatened
- California red-legged frog (Rana draytonii), threatened
- Delta smelt (Hypomesus transpacificus), threatened
- Valley elderberry longhorn beetle, (Desmocerus californicus), threatened
- Vernal pool fairy shrimp (Branchinecta lynchi), threatened
- Vernal pool tadpole shrimp (Lepidurus packardi), endangered
- Slender Orcutt grass (Orcuttia tenuis), threatened

The giant garter snake, California red-legged frog, Delta smelt, vernal pool fairy shrimp, vernal pool tadpole shrimp, and slender Orcutt grass require aquatic habitat for all or part of their life history. Because of the pond on the South Oroville Industrial Site, habitat for these species could be available. It is unlikely, however, any of these species would be found in such a developed, heavy industrial area. Surveys for the above listed species will be conducted by a USFWS-approved biologist prior to any work beginning on the site. If any of these species are found onsite, USFWS will be consulted to ensure practices are put in place to prevent impacts to these species. If the impacts cannot reasonably be avoided, USACE will purchase mitigation credits at a ratio approved by USFWS.

The impacts to the yellow-billed cuckoo, the Valley elderberry longhorn beetle, and migratory birds would be identical to those of both the Koppers, Inc. sites

3.8.5 Avoidance and Minimization

In order to avoid and minimize effects to migratory birds, the following BMPs will be implemented;

- *Migratory Birds BMP-1:* A qualified biologist will survey the project area during the nesting season (but prior to the project or action occurring) to determine if migratory birds are present and nesting in those areas. These bird surveys should occur no more than 7-10 days prior to when work actually begins on the project site. Such surveys will serve to inform the likely presence of nesting migratory birds in the proposed project or work area.
- Migratory Birds BMP-2: If migratory birds are present and nesting in the proposed project area, USFWS will be contacted for guidance on appropriate next steps to avoid or minimize impact to (and take of) migratory birds associated with the proposed project or action. Should removal and relocation of the nests be required, all efforts will be coordinated with USFWS.

3.9 Hazardous Spills

3.9.1 No Action Alternative

Under this alternative, the federal government would not operate a temporary debris handling facility and the responsibility for handling the debris would be taken by the State of California. As such, the sites at which California would employ for debris processing cannot be determined, so this alternative is likely to have equivalent effects to all the action alternatives.

3.9.2 Expanded Koppers, Inc. Oroville Plant (Preferred Alternative)

As with any project, there is a potential for the environment to be exposed to hazardous substances through spills. However, this potential is typically mitigated through preparation and implementation of a hazardous spill prevention plan. BMPs to prevent and mitigate for spills will be implemented.

3.9.3 Reduced Koppers, Inc. Oroville Plant

All effects, avoidance and mitigation measures for the Expanded Koppers, Inc. Oroville Plant site are identical to conditions at the Reduced Koppers, Inc. Oroville Plant.

3.9.4 South Oroville 4801 Feather River Blvd

The effects of hazardous spills is expected to be the same at the South Oroville 4801 Feather River Blvd site as the previous two action alternatives. BMPs to prevent and mitigate for spills will be implemented.

3.9.5 Avoidance and Mitigation

The following BMPs will be implemented to prevent any impacts as a result of hazardous spills:

- *Hazardous Spills BMP-1:* A hazardous spills prevention plan will be prepared and implemented. The plan will identify best management practices for storing hazardous materials, protecting the environment from spills, and reporting and remediating any spills.
- *Hazardous Spills BMP-2:* Any tanks holding hazardous materials such as fuel, hydraulic fluid or any other such material, will have a secondary containment system in place.

Ensuring the hazardous spill prevention plan is strictly followed will ensure hazardous spills are prevented and, should they occur, are contained and immediately cleaned up. Additionally, CalRecycle will be rinsing all debris prior to its arrival at the site. Therefore, it is unlikely there will be any significant effects as a result of hazardous spills.

3.10 Cumulative Impacts

A survey of past, present, and future projects in the vicinity of the project area was conducted. The projects that will result in cumulative impacts primarily include activities related to the response and recovery efforts in Butte County. However, the fire response and recovery efforts are currently considered part of the baseline action. Quantifying the significant amount of effort

required for the impacted area and community to recover would be an exhaustive effort that is outside of the scope of this action. Further, the State of California and Butte County, through their proclamations, have identified fire response and recovery as a priority.

4.0 PUBLIC OUTREACH

Public outreach is a critical component of the NEPA process and an important aspect of the proposed action. USACE is committed to engaging the community to keep residents informed of debris handling activities. Community outreach will include notifying the community of the proposed project through a notification flyer, community meetings, and a website. A community meeting will be held prior to the use of any of the action alternatives.

To date, community engagement has included:

- 3 December 2018, USACE, FEMA, California Office of Emergency Services (CalOES), CalTrans, and CalRecycle met with representatives from the City of Chico, Department of Public Works, to discuss the proposed use of the Barber Industrial Site as a temporary debris handling facility.

- 12 December 2018, USACE, CalRecycle, and FEMA participated in a community meeting to discuss the use of the Barber Industrial site. Resistance to the utilization of this site was significant and efforts to find an alternative site were redoubled.

- 19 December 2018, USACE, FEMA, and CalOES met with a steering committee that included representatives of Gridley, Chico, Oroville, Paradise, and Butte County to receive information regarding alternative sites.

5.0 CONCLUSIONS

Based on the analysis herein, USACE believes the proposed Expanded Koppers, Inc. Oroville Plant temporary debris handling facility would not result in significant effects to the environment. Although there will be impacts resulting from utilizing the Expanded Koppers, Inc. Oroville Plant as a temporary debris handling facility, they will be mitigated to a less than significant level. Under the no action alternative the state of California would be required to identify alternative processing and disposal sites that would result in similar impacts to those identified herein. In particular, impact to transportation and air quality could be greater if the state identifies processing and disposal sites that require additional trucking of debris to a location(s) farther from the impacted area. The Expanded Koppers, Inc. Oroville Plant, an industrial site that is adjacent to an existing railroad spur, offers a solution to quickly and efficiently remove non-hazardous debris from the impacted area.

DECLARED NOVEMBER 9, 2018

SUMMARY

STATE: California

NUMBER: FEMA-3409-EM

INCIDENT: Wildfires

INCIDENT PERIOD: November 8, 2018, and continuing

DATE REQUESTED BY GOVERNOR: November 8, 2018

FEDERAL COORDINATING OFFICER: David G. Samaniego
National FCO Program

DESIGNATIONS AND TYPES OF ASSISTANCE:

The Department of Homeland Security, Federal Emergency Management Agency (FEMA), is authorized to provide appropriate assistance for required emergency measures, authorized under Title V of the Stafford Act, to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in the designated areas. Specifically, FEMA is authorized to provide emergency protective measures (Category B), limited to direct federal assistance, under the Public Assistance program at 75 percent federal funding.

This assistance is for the counties of Butte, Los Angeles, and Ventura.

OTHER: Additional designations may be made at a later date if requested by the state and warranted by the results of further evaluation.

Note: This is an emergency declaration.

DECLARED NOVEMBER 12, 2018

SUMMARY

STATE: California

NUMBER: FEMA-4407-DR

INCIDENT: Wildfires

INCIDENT PERIOD: November 8, 2018, and continuing

DATE REQUESTED BY GOVERNOR: November 10, 2018

FEDERAL COORDINATING OFFICER: David G. Samaniego
National FCO Program

DESIGNATIONS AND TYPES OF ASSISTANCE:

INDIVIDUAL ASSISTANCE (Assistance to individuals and households):

Butte, Los Angeles, and Ventura Counties.

PUBLIC ASSISTANCE (Assistance for emergency work and the repair or replacement of disaster-damaged facilities):

Butte, Los Angeles, and Ventura Counties for debris removal and emergency protective measures (Categories A and B), including direct federal assistance, under the Public Assistance program at 75 percent federal funding.

HAZARD MITIGATION GRANT PROGRAM (Assistance for actions taken to prevent or reduce long term risk to life and property from natural hazards):

All areas in the State of California are eligible for assistance under the Hazard Mitigation Grant Program.

OTHER: Additional designations may be made at a later date if requested by the state and warranted by the results of further damage assessments.

Executive Department

State of California

PROCLAMATION OF A STATE OF EMERGENCY

WHEREAS on November 8, 2018, the Camp Fire began burning in Butte County and continues to burn; and

WHEREAS this fire has destroyed homes and continues to threaten additional homes and other structures, necessitating the evacuation of thousands of residents; and

WHEREAS the fire has forced the closure of roadways and continues to threaten critical infrastructure; and

WHEREAS high temperatures, low humidity, and erratic winds have further increased the spread of this fire; and

WHEREAS the Federal Emergency Management Agency has approved a Fire Management Assistant Grant to assist with the mitigation, management, and control of the Camp Fire; and

WHEREAS the circumstances of this fire, by reason of its magnitude, are or are likely to be beyond the control of the services, personnel, equipment, and facilities of any single local government and require the combined forces of a mutual aid region or regions to combat; and

WHEREAS under the provisions of Government Code section 8558(b), I find that conditions of extreme peril to the safety of persons and property exists in Butte County due to this fire; and

WHEREAS under the provisions of Government Code section 8571, I find that strict compliance with the various statutes and regulations specified in this order would prevent, hinder, or delay the mitigation of the effects of the Camp Fire.

NOW, THEREFORE, I, GAVIN NEWSOM, Acting Governor of the State of California, in accordance with the authority vested in me by the State Constitution and statutes, including the California Emergency Services Act, and in particular, Government Code section 8625, **HEREBY PROCLAIM A STATE OF EMERGENCY** to exist in Butte County due to the Camp Fire.

IT IS HEREBY ORDERED THAT:

1. All agencies of the state government utilize and employ state personnel, equipment, and facilities for the performance of any and all activities consistent with the direction of the Office of Emergency Services and the State Emergency Plan. Also, all citizens are to heed the advice of emergency officials with regard to this emergency in order to protect their safety.

2. The Office of Emergency Services shall provide local government assistance to Butte County, if appropriate, under the authority of the California Disaster Assistance Act, Government Code section 8680 et seq., and California Code of Regulations, Title 19, section 2900 et seq.

3. As necessary to assist local governments and for the protection of public health and the environment, state agencies shall enter into contracts to arrange for the procurement of materials, goods, and services necessary to quickly assist with the response to and recovery from the impacts of the Camp Fire. Applicable provisions of the Government Code and the Public Contract Code, including but not limited to travel, advertising, and competitive bidding requirements, are suspended to the extent necessary to address the effects of the Camp Fire.

4. The provisions of Unemployment Insurance Code section 1253 imposing a one-week waiting period for unemployment insurance applicants are suspended as to all applicants who are unemployed as a direct result of the Camp Fire, who applied for unemployment insurance benefits during the time period beginning November 8, 2018, and ending on the close of business on May 8, 2019, and who are otherwise eligible for unemployment insurance benefits.

5. Vehicle Code sections 9265(a), 9867, 14901, 14902, and 15255.2, requiring the imposition of fees, are suspended with regard to any request for replacement of a driver's identification card, vehicle registration certificate, or certificate of title, by any individual who lost such records as a result of the Camp Fire. Such records shall be replaced without charge.

6. The provisions of Vehicle Code sections 4602 and 5902, requiring the timely registration or transfer of title are suspended with regard to any registration or transfer of title by any resident of Butte County who is unable to comply with those requirements as a result of the Camp Fire. The time covered by this suspension shall not be included in calculating any late penalty pursuant to Vehicle Code section 9554.

7. Health and Safety Code sections 103525.5 and 103625, and Penal Code section 14251, requiring the imposition of fees are hereby suspended with regard to any request for copies of certificates of birth, death, marriage, and dissolution of marriage records, by any individual who lost such records as a result of the Camp Fire. Such copies shall be provided without charge.

I FURTHER DIRECT that as soon as hereafter possible, this proclamation be filed in the Office of the Secretary of State and that widespread publicity and notice be given of this proclamation.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 8th day of November 2018.

GAVIN NEWSOM
Acting Governor of California

ATTEST:

ALEX PADILLA
Secretary of State

Executive Department

State of California

EXECUTIVE ORDER B-57-18

WHEREAS on November 8, 2018, a state of emergency was proclaimed in Butte County as a result of the Camp Fire; and

WHEREAS on November 9, 2018, a state of emergency was proclaimed in Los Angeles County and Ventura County as a result of the Hill Fire and Woolsey Fire; and

WHEREAS red flag fire weather conditions, including extremely high temperatures and low humidity, coupled with particularly dry vegetation, have made the 2018 fire season the most destructive and deadly on record; and

WHEREAS California will require immediate additional resources to assist in responding to, recovering from, and mitigating the effects of these wildfires; and

WHEREAS the wildfires have destroyed thousands of homes and other structures, creating an enormous amount of hazardous debris; and

WHEREAS this hazardous debris, which is comprised of dangerous toxins including heavy metals such as arsenic, cadmium, copper, lead, and asbestos and must be removed cautiously and expeditiously; and

WHEREAS under the provisions of Government Code section 8571, I find that strict compliance with the various statutes and regulations specified in this order would prevent, hinder, or delay the mitigation of the effects of the wildfires; and

NOW, THEREFORE, I, EDMUND G. BROWN JR., Governor of the State of California, in accordance with the authority vested in me by the Constitution and statutes of the State of California, and in particular, Government Code sections 8567 and 8571, do hereby issue the following order to become effective immediately:

IT IS HEREBY ORDERED THAT:

1. All provisions contained in the above-referenced Proclamations shall remain in full force and effect.

2. State statutes, rules, regulations and requirements are hereby suspended to the extent they apply to the following activities: (a) removal, storage, transportation, and disposal of hazardous and non-hazardous solid waste and debris resulting from the wildfires that have burned and continue to burn in areas that are subject to the jurisdiction of agencies within the California Environmental Protection Agency and the California Natural Resources Agency; and (b) necessary restoration and rehabilitation of timberland, streams, rivers, and other waterways. Such statutes, rules, regulations and requirements are hereby suspended only to the extent necessary for expediting the removal and cleanup of debris from the wildfires, and for implementing any restoration plan. Individuals who desire to conduct activities under this suspension of statutes, rules, regulations, and requirements shall first request that the appropriate Agency Secretary, or his

delegate, make a determination that the proposed activities are eligible to be conducted under this suspension. The Secretary for the California Environmental Protection Agency and the Secretary for the California Natural Resources Agency shall use sound discretion in applying this Executive Order to ensure that the suspension serves the purpose of accelerating cleanup and recovery, while at the same time protecting public health and the environment. This order shall apply to, but is not necessarily limited to: solid waste facility permits; waste discharge requirements for storage and disposal; emergency timber harvesting; emergency construction activities; and waste discharge requirements and/or Water Quality Certification for discharges of fill material or pollutants. To the extent it is within their administrative authority, the boards, departments and offices within the California Environmental Protection Agency and the California Natural Resources Agency shall expedite the granting of other authorizations, waivers or permits necessary for the removal, storage, transportation, and disposal of hazardous and non-hazardous debris resulting from the wildfires, and for other actions necessary for the protection of public health and the environment.

3. The Governor's Office of Emergency Services shall ensure adequate state staffing to expedite disaster response and recovery efforts. Consistent with applicable federal law, work hour limitations for retired annuitants and permanent and intermittent personnel are suspended. Furthermore, reinstatement and work hour limitations in Government Code sections 21220, 21224(a), and 7522.56(b), (d), (f), and (g), and the time limitations in Government Code section 19888.1 and California Code of Regulations, title 2, sections 300-303 are suspended. The Director of the California Department of Human Resources must be notified of any individual employed pursuant to these waivers.

4. The provisions of Penal Code section 396, subdivisions (b) and (c), prohibiting price gouging in times of emergency, will remain in effect until November 8, 2019, for Butte, Los Angeles, and Ventura Counties. The time limitations under those subdivisions are hereby waived.

5. The fourteen day time period in Health and Safety Code section 101080, within which local governing authorities must renew a local health emergency, is hereby waived. Any local health emergencies proclaimed as a result of the debris generated by these wildfires debris will remain in effect until each local governing authority terminates its respective health emergency.

6. The thirty day time period in Government Code section 8630, within which local governing authorities must renew a local emergency, is hereby waived. Any local emergencies proclaimed as a result of these wildfires will remain in effect until each local governing authority terminates its respective emergency.

7. The United States Environmental Protection Agency, the Federal Emergency Management Agency, or any other individual or entity performing work at their direction, shall have full power to provide mutual aid to the State of California and any areas affected by a local health emergency and will have the authority to enter private property in all impacted counties to remove debris that may contain hazardous substances, and to conduct any testing appropriate to ensure the hazards are mitigated. Any section of the Health and Safety Code permitting the immediate removal of this hazardous debris, including but not limited to section 101085, shall apply to and include the actions of the United States Environmental Protection Agency, the Federal Emergency Management Agency, or any individual or entity performing work at their direction, as if those agencies were a political subdivision or state agency for all purposes related to this operation.

8. State statutes, rules, regulations and requirements set forth in the Mobilehome Parks Act (Health and Safety Code section 18200 et seq., and California Code of Regulations, title 25, section 1000 et seq.), and the Special Occupancy Parks Act (Health and Safety Code section 18860 et seq., and California Code of Regulations, title 25, section 2000 et seq.), are suspended in Butte, Los Angeles, and Ventura Counties, as these laws pertain to disaster survivors in the impacted counties, for three years after the date of this Executive Order in order to quickly provide housing for those displaced by the wildfires.

9. The Department of Housing and Community Development and local enforcement agencies, including those with delegated disaster authority, will jointly develop permitting, operating, and construction standards to maintain reasonable health and safety standards for the disaster survivors, the residents and the surrounding communities in the impacted areas in Butte, Los Angeles, and Ventura Counties. Such standards shall provide reasonable consistency with appropriate fire, health, flood, and other factors normally considered in the mobilehome or special occupancy park approval process for the construction of a new park or manufactured home installation standards and accessory buildings or structures during the three-year suspension authorized by this Executive Order.

10. All fees assessed by the state and local enforcement agencies that are authorized by the Mobilehome Parks Act, as required by Health and Safety Code section 18500 et seq., and the Special Occupancy Parks Act section 18870 et seq., are suspended and shall be waived by the Department of Housing and Community Development for three years after the date of this Executive Order with regard to manufactured home installation and recreational vehicle use for disaster survivors who are owners or occupants of a manufactured home or mobilehome, or recreational vehicle, whose homes were damaged or destroyed as a result of the wildfires located in Butte, Los Angeles, and Ventura Counties.

11. All fees assessed by the state and local enforcement agencies that are authorized by the Mobilehome Parks Act as required by Health and Safety Code section 18503 and California Code of Regulations, title 25, section 1020.1, are suspended and shall be waived by the Department of Housing and Community Development, including fees for any required inspections or plan checking, for any disaster survivor who is an owner or occupant of a manufactured home or mobilehome whose home was damaged or destroyed as a result of the wildfires located in Butte, Los Angeles, and Ventura Counties.

12. All fees assessed by the state and local enforcement agencies that are authorized by the Manufactured Housing Act (Health and Safety Code section 18000 et seq., and California Code of Regulations, title 25, section 4000 et seq.), as required by Health and Safety Code section 18031 and California Code of Regulations, title 25, section 4044, are suspended and shall be waived by the Department of Housing and Community Development, including fees for any required inspections or plan checking, for any owner or occupant of a manufactured home or mobilehome whose home was damaged or destroyed as a result of the wildfires located in Butte, Los Angeles, and Ventura Counties.

13. All fees assessed by the state and local enforcement agencies that are authorized by the Manufactured Housing Act, as described in Health and Safety Code sections 18075, 18114, and 18116, are suspended and fees shall be waived by the Department of Housing and Community Development, including any fees for the late renewal of registration certificate or certificate of title for a manufactured home or mobilehome, by any owner or occupant that is a disaster survivor and whose home was damaged or destroyed as a result of the wildfires located in Butte, Los Angeles, and Ventura Counties.

14. All fees assessed by the state and local enforcement agencies that are authorized by the Manufactured Housing Act, as set forth at Health and Safety Code section 18075 and chapter 5 (commencing with section 5510) of the California Code of Regulations, title 25, related to establishing proof of ownership, are suspended and shall be waived for any mobilehome or manufactured home resident whose home was damaged or destroyed by the identified wildfires located in Butte, Los Angeles, and Ventura Counties, for three years of the date of this Executive Order. This waiver shall include, but not be limited to, processing fees for duplicate certificates of title or registrations, salvage applications and salvage certificates, the processing fees and costs for establishing registered ownership pursuant to article 3.5 (commencing with section 5535) of the California Code of Regulations, title 25, and other related fees.

15. The planning and zoning requirements in Government Code sections 65853 through 65863.13 as applicable to housing projects in the impacted counties, are suspended for three years after the date of this Executive Order, for recreational vehicles, mobilehomes and manufactured homes and mobilehome and special occupancy parks damaged or destroyed as a result of the wildfires in Butte, Los Angeles, and Ventura Counties.

16. Any local government zoning and land use ordinances in Butte, Los Angeles, and Ventura Counties, as authorized by the state statutes and regulations suspended by paragraphs 8 and 15 of this Executive Order, that would preclude the placement and use of a manufactured home, mobilehome, or recreational vehicle on a private lot outside of a mobilehome park or special occupancy park for use during the reconstruction or repair of a home damaged or destroyed by the wildfires or subsequent floods and debris flows, are suspended for three years after the date of this Executive Order for the individuals impacted by those events. Those individuals placing manufactured homes, mobilehomes, or recreational vehicles on lots pursuant to this paragraph shall obtain permits as described in paragraph 9.

17. In order to quickly provide relief from interest and penalties, the provisions of Revenue and Taxation Code sections 6592 and 6593, requiring the filing of a statement under penalty of perjury setting forth the facts for a claim for relief, are suspended for a period of 60 days after the date of this Executive Order for any individuals or businesses who are unable to file a timely tax return or make a timely payment as a result of the wildfires in the impacted counties.

18. Under the Property Tax Postponement program, homeowners who are seniors, blind, or have a disability may defer current-year property taxes on their principal residence if they meet certain criteria, including 40 percent equity in the home and an annual household income of $35,500 or less. To allow counties time to reappraise the value of property to account for fire damage, the requirement in Revenue and Taxation Code section 20622 that the homeowner file the claim with the Controller by February 10, 2019, is waived as to homeowners in the affected counties. Claims must instead be filed by June 1, 2019.

19. The Franchise Tax Board, the Board of Equalization, the Department of Tax and Fee Administration, and the Office of Tax Appeals shall use their administrative powers where appropriate to provide those individuals and business impacted by the wildfires with the extensions for filing, audits, billing, notices, assessments, and relief from subsequent penalties and interest.

20. Any fairgrounds that the Office of Emergency Services determines are suitable for temporary sheltering for fire survivors shall be made available to the Office of Emergency Services pursuant to the Emergency Services Act, Government Code section 8589. The Office of Emergency Services shall notify the fairgrounds of the intended use and can immediately utilize the fairgrounds without the fairground board of directors' approval.

21. Any state-owned properties that the Office of Emergency Services determines are suitable for temporary sheltering for fire survivors shall be made available to the Office of Emergency Services for this purpose.

22. The Office of Emergency Services shall evaluate state properties that can be refurbished or improved to be made suitable for temporary sheltering. The costs associated with making these properties suitable for temporary sheltering shall be paid for utilizing California Disaster Assistance Act funding, pursuant to Government Code section 8680 et seq., and Code of Regulations, title 19, section 2900 et seq.

23. In order to ensure hospitals, clinics and other health facilities remain open, the Director of the Department of Public Health may waive any of the licensing requirements of Chapters 1 and 2 of Division 2 of the Health and Safety Code and accompanying regulations with respect to any hospital, clinic or health facility identified in Health and Safety Code section 1200, section 1206, subdivisions (d) and (h), and section 1250, that is impacted by the fires. Any waiver shall include alternative measures that, under the circumstances, will allow the facilities to remain open while protecting public health and safety. Any facilities being granted a waiver shall be established and operated in accordance with their disaster and mass casualty plan. Any waivers granted pursuant to this paragraph shall be posted on the Department's website.

24. To address the needs for assisted living facilities, adult residential facilities, child care facilities, children's residential facilities, resource family homes, and other similar facilities within the Department of Social Services' jurisdiction, the Director of the Department of Social Services may waive any provisions of the Health and Safety Code or Welfare and Institutions Code, and accompanying regulations or written directives, with respect to the use, licensing, or approval of facilities or homes within the Department's jurisdiction set forth in the California Community Care Facilities Act (Health and Safety Code section 1500 et seq.), the California Child Day Care Facilities Act (Health and Safety Code section 1596.70 et seq.), and the California Residential Care Facilities for the Elderly Act (Health and Safety Code section 1569 et seq.). Any waivers granted pursuant to this paragraph shall be posted on the Department's website.

This Order is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.

I FURTHER DIRECT that as soon as hereafter possible, this Order be filed in the Office of the Secretary of State and that widespread publicity and notice be given of this Order.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 14th day of November 2018.

EDMUND G. BROWN JR.
Governor of California

ATTEST:

ALEX PADILLA
Secretary of State

BOARD OF SUPERVISORS
COUNTY OF BUTTE, STATE OF CALIFORNIA

PROCLAMATION OF EXISTENCE OF A LOCAL EMERGENCY

(By Chief Administrative Officer)

WHEREAS, Section 8-5 (I) of the *Butte County* Code empowers the Chief Administrative Officer of the County of Butte, in the absence of the Board Chair and Vice Chair, to proclaim the existence or threatened existence of a local emergency when said *County* is affected or likely to be affected by a public calamity and the Board of Supervisors is not in session, and;

WHEREAS, the Chief Administrative Officer of the County of Butte does hereby find; that conditions of extreme peril to the safety of persons and property have arisen within said County, caused by wildfire; which began on the 8th day of November 2018, and;

WHEREAS, these conditions are or are likely to be beyond the control of the services, personnel, equipment, and facilities of said *County,* and;

WHEREAS, that the County Board of Supervisors of the *County* of Butte is not in session and cannot immediately be called into session;

NOW, THEREFORE, IT IS HEREBY PROCLAIMED that a local emergency now exists throughout said County, and;

BE IT FURTHER RESOLVED that the County of Butte requests the State of California to waive regulations that may hinder response and recovery efforts, make available assistance under the California Disaster Assistance Act or any other state funding, and to expedite access to federal resources and any other appropriate federal disaster relief programs (e.g. SBA funding, etc.); and,

IT IS FURTHER PROCLAIMED AND ORDERED that during the existence of said local emergency the powers, functions, and duties of the emergency organization of this *County* shall be those prescribed by state law, by ordinances, and resolutions of this *County*, and; that this emergency proclamation shall expire in 7 days after issuance unless confirmed and ratified by the governing body of the *County* of Butte.

Dated: November 8, 2018

By: _____
Shari McCracken
Chief Administrative Officer

Time: 1200

FIFTH FIVE-YEAR REVIEW REPORT FOR KOPPERS COMPANY, INC. SUPERFUND SITE BUTTE COUNTY, CALIFORNIA

PREPARED BY

U.S. Army Corps of Engineers
Seattle District
Seattle, WA

FOR

U.S. Environmental Protection Agency

Region IX

Approved by: Dana Barton

Dana Barton
Assistant Director, Superfund Division
California Site Cleanup and Enforcement Branch
U.S. EPA, Region 9

Date: 9/26/18

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Executive Summary

This is the fifth Five-Year Review of the Koppers Company, Inc. Superfund Site (Site) located in Oroville, Butte County, California. The purpose of this FYR is to review information to determine if the remedy is and will continue to be protective of human health and the environment. The triggering action for this FYR was the signing of the previous FYR on August 28, 2013.

The approximately 205-acre Site is located within Butte County, in the southern portion of the City of Oroville, California, east of Highway 70. Residual waste from wood-treatment operations was historically discharged to on-site unlined evaporation basins. Product handling and two fires (in 1963 and 1987) also contributed to Site contamination. Contaminants of concern include pentachlorophenol, isopropyl ether, polynuclear aromatic hydrocarbons, polychlorinated dibenzo-p-dioxins/polychlorinated dibenzofurans, arsenic, barium, boron, chromium, copper, and creosote.

The Record of Decision was signed in September 1989. Subsequent changes to the Record of Decision were documented by an Explanation of Significant Differences (January 1991), and two Record of Decision Amendments (August 1996 and September 1999).

To address soil and groundwater contamination and to protect long-term human health and the environment, the United States Environmental Protection Agency (EPA) selected and implemented the following remedy: excavation of contaminated soils, debris and sediments; disposal into on-site landfill cells and capping; extraction and treatment of (On-Property and Off-Property) groundwater contamination with enhanced in situ bioremediation; product recovery; providing an alternate domestic water supply to downgradient impacted community members; and implementing institutional controls which restrict use of the property.

The selected remedy achieved construction completion with EPA signing of the *Preliminary Close Out Report* on September 4, 2003. The Off-Property groundwater remediation is completed and the treatment system has been removed. The On-Property treatment system is still operating, cleanup standards have not been met, and routine Operations and Maintenance tasks are ongoing.

Review of groundwater data during this review period indicates the Off-Property pentachlorophenol groundwater plume has been remediated and restored to its beneficial use as drinking water supply. The On-Property (1994-Present) groundwater extraction and treatment remedy continues to operate to control the migration of remaining On-Property groundwater contamination. There has been no migration of contaminants of concerns from the Technical Impracticability Zone or from the On-Property plume.

Recorded institutional controls restrict groundwater extraction and limit land use to industrial/commercial. Access controls in the form of fencing also exist to prevent tampering and vandalism to the remedy. The exposure assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives are still valid.

No issues or other findings were found during the review period of this Five-Year Review.

The remedy at the Koppers Company, Inc. Superfund Site is protective of human health and the environment because all exposure pathways that could result in unacceptable risk are being controlled. A deed restriction restricts the property to industrial/commercial use only. The Off-Property groundwater has been restored to beneficial use. Current data indicate that the groundwater remediation is progressing and that the remedy is functioning as required to achieve groundwater cleanup standards.

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List of Abbreviations

ARAR	Applicable or Relevant and Appropriate Requirement
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	contaminants of concern
DTSC	Department of Toxic Substances Control
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FYR	Five-Year Review
GAC	Granular Activated Carbon
ICs	Institutional Controls
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PAHs	polynuclear aromatic hydrocarbons
PCP	pentachlorophenol
PR	product recovery
PRP	Potentially Responsible Party
RAO	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board
TI	Technical Impracticability
USACE	United States Army Corps of Engineers

1. Introduction

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this five-year review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, 40 Code of Federal Regulation Section 300.430(f)(4)(ii) of the National Contingency Plan (NCP) and EPA policy.

This is the fifth FYR for the Koppers Company, Inc. Superfund Site (Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR is necessary because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

Daewon Rojas-Mickelson of EPA, Region IX, led the Site FYR. Participants included Blair Kinser and Jeff Weiss of the U.S Army Corps of Engineers (USACE), Seattle District. The Department of Toxic Substances Control, as the support agency representing the State of California, has reviewed all supporting documentation and provided input to EPA during the FYR process. The review began on 10/19/2017.

Documents reviewed for this FYR are included in Appendix A.

Table 1. Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Koppers Company, Inc. Superfund Site		
EPA ID: CAD009112087		
Region: 9	**State:** CA	**City/County:** Oroville, Butte County
SITE STATUS		
NPL Status: Final		
Multiple OUs? No	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA ***[If "Other Federal Agency", enter Agency name]*:**		
Author name (Federal or State Project Manager): Daewon Rojas-Mickelson		
Author affiliation: EPA Region 9		
Review period: 10/19/2017 - 6/29/2018		
Date of site inspection: 3/28/2018		
Type of review: Statutory		
Review number: 5		
Triggering action date: 8/28/2013		
Due date *(five years after triggering action date)*: 8/28/2018		

1.1. Background

Beginning in 1920, Hutchison Lumber mill operated at the location which later became the Koppers Company, Inc. Superfund Site. In 1948, National Wood Treating Company purchased the property and initiated wood treatment operations with ammoniacal copper arsenate, pentachlorophenol-in-oil mixture and creosote. In 1955, Koppers Company, Inc. (Koppers) purchased the property and expanded its wood treatment operations using chemical preservatives such as: pentachlorophenol (PCP), polynuclear aromatic hydrocarbons (PAHs), creosote, chromated copper arsenate solution, and boron. The operations of the wood treating facility included injections of preservatives under pressure into wood products such as railroad ties and telephone poles to prevent deterioration by insects and fungi. Chemical fires, wood treatment operations, product and chemical handling methods, and wastewater handling procedures contaminated soil On-Property, and groundwater both On and Off-Property. In 1988, Beazer East, Inc. (Beazer) assumed responsibility for historical contamination caused by Koppers' operations and since that time has conducted all remedial response actions at the Site. Koppers ceased production operations in 2001. A land use covenant has been recorded which, among other things, restricts the property to industrial/commercial use.

1.2. Physical Characteristics

The approximately 205-acre Site is located in Oroville, the county seat of Butte County, California, off Highway 70 on Baggett-Marysville Road (Figure 1). As of 2010, the population of Oroville was approximately 15,600 with over 10,000 people living within a three-mile radius of the Site. Land near the Site is zoned for a mixture of residential, industrial, commercial, and agricultural uses. Many residents raise livestock and grow produce for personal use. There are three schools within a 2-mile radius of the Site (EPA, 1989).

Elevation of the Site is approximately 145 feet above mean sea level with topography sloping towards the southwest. The western boundary of the Site is roughly 3,000 feet east of the Feather River and the Site lies within the Feather River flood plain. The Oroville Wildlife Area occupies the area west of the Feather River. To the south of the Site the Yuba River flows into the Feather River near Marysville, California, the Feather River then joins the Sacramento River approximately ten miles north of the City of Sacramento.

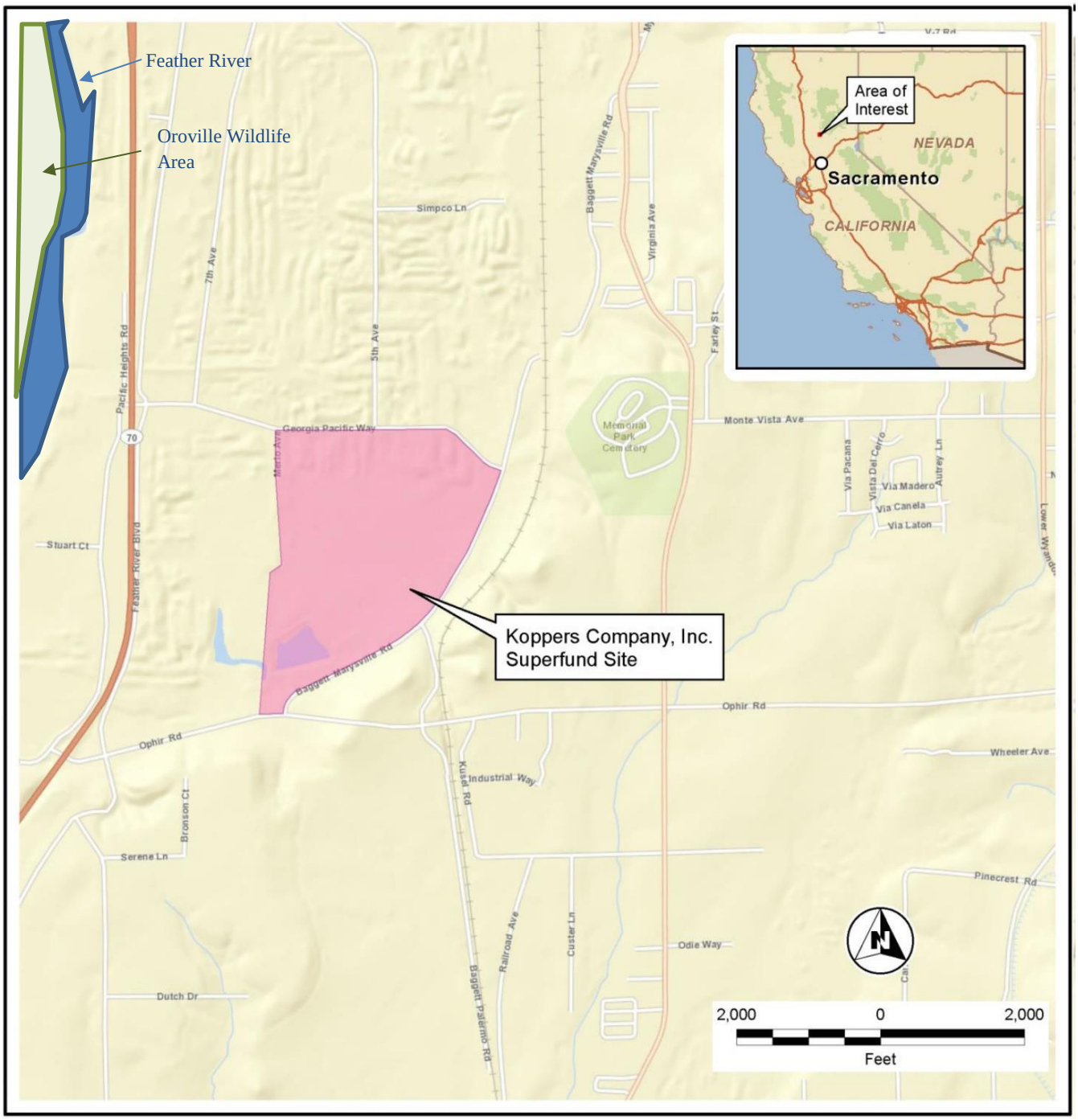


Figure 1. Location Map for the Koppers Company, Inc Superfund Site (EPA, 2013).

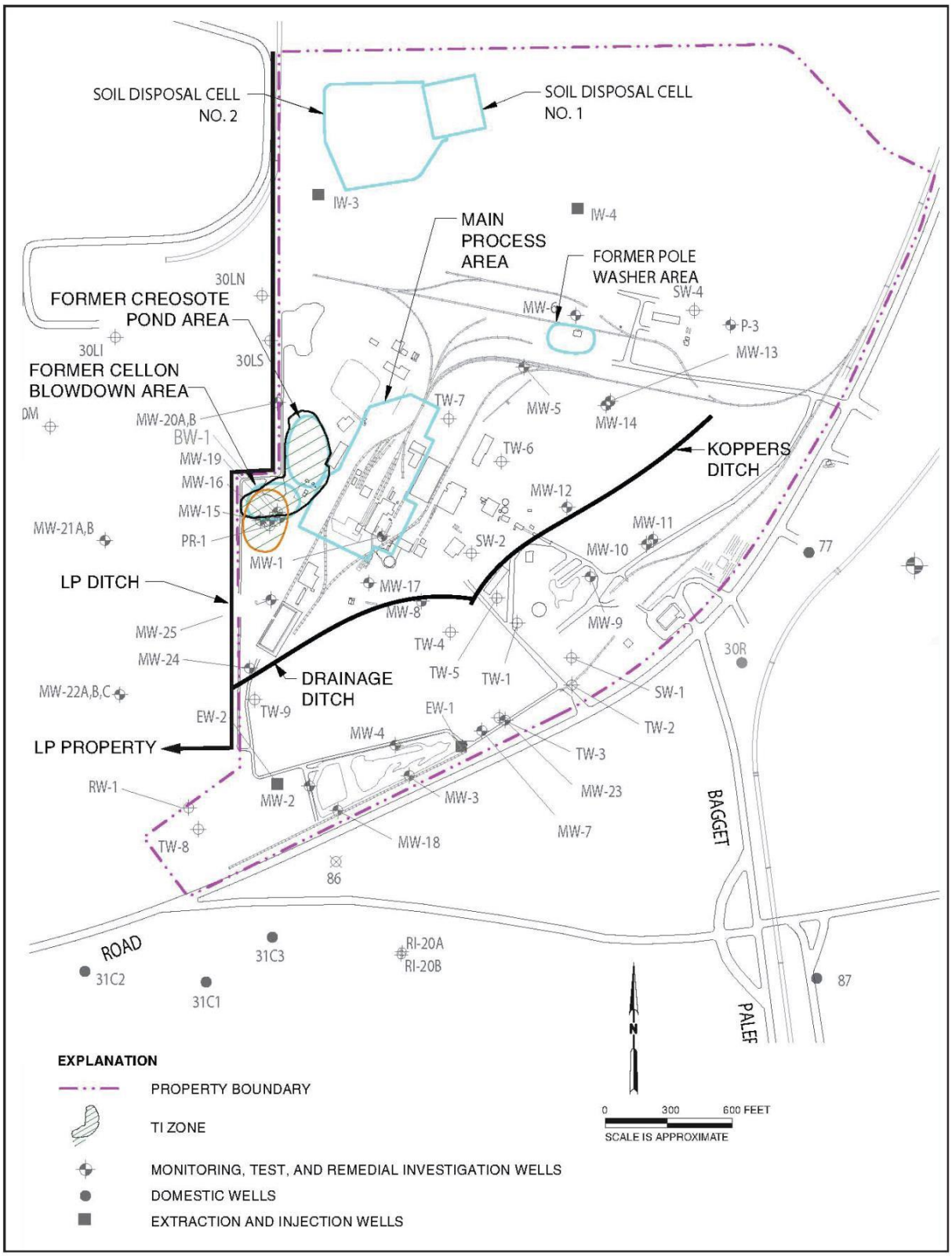


Figure 2. Detailed Map of the Koppers Company, Inc Superfund Site (EPA, 2003).

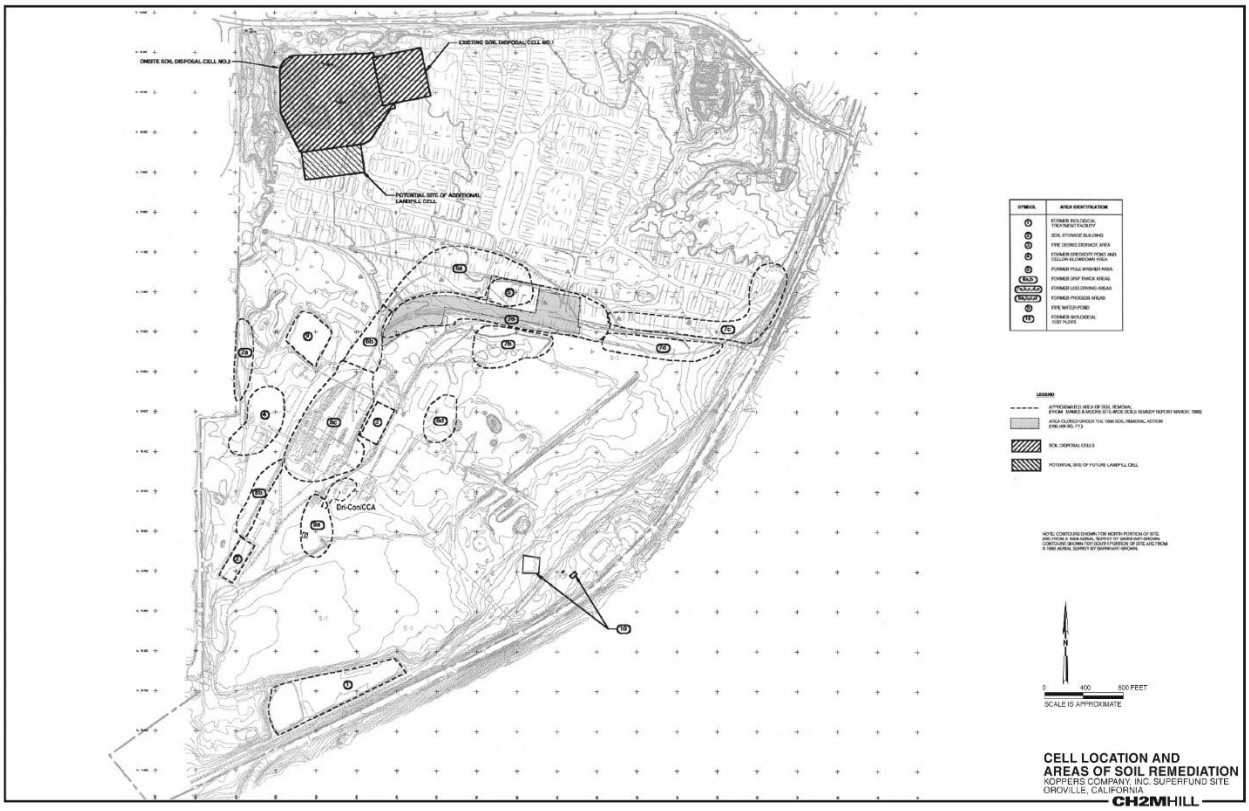


Figure 3. Detailed Map of soil excavation locations at the Koppers Company, Inc Superfund Site (EPA, 2003).

1.3. Hydrology/Hydrogeology

Site storm water runoff flows into the Koppers Ditch and Drainage Ditch into the L-P ditch, located at the western property boundary (Figure 2). The L-P Ditch then drains to the L-P pond west of the Site. The Feather River is located approximately 3,000 feet west of the Site (Figure 1), trending west-southwest at approximately 130 feet above sea level.

The geology underlying the Site consists of alluvial gravel, sand, and clay deposits from the Feather River and its ancestral river systems. Four geologic units within the Site footprint have been identified from the ground surface to approximately 300 feet below ground surface (bgs) (HSI Geo Trans, 1999 and Dames and Moore, 1988). Three interconnected geologic units or zones, referred to as the A-zone, the B-zone, and the C-zone, occur both on and off-Site.

The regional A-zone is composed of mixed gravel, which is unsaturated e on the Site and, thus, is not present as an aquifer unit. The A-zone aquifer is a saturated zone south of the Site. The B-zone aquifer divides into the upper B and lower B, due to the presence of discontinuous shallow clay layers ranging from 50 to 80 feet bgs. The C-zone aquifer separates from the lower B by a discontinuous middle clay zone at approximately 125 feet bgs, and the C aquifer extends to an irregular discontinuous silty clay layer at approximately 165 feet bgs. Interbedded clays form discontinuous aquitards and create confining conditions. On a sitewide scale, the upper B, lower B, and C-zone aquifers are interconnected; however, in some portions of the Site competent clay layers (HSI Geo Trans, 1999) locally vertically separate them.

Groundwater flow direction is to the south at an average velocity of 500 feet/year. The hydraulic gradient ranges from 0.001 to 0.004 feet per foot, and is somewhat higher On-Property than the gradient Off-Property (HSI Geo Trans, 1999). There is an extensive groundwater monitoring well network at the Site used for contaminants of concern (COCs) concentration evaluation and for groundwater level measurements (see Figure 2). Vertical gradients are variable throughout the Site.

2. Remedial Actions Summary

2.1. Basis for Taking Action

Koppers Company, Inc. operated a wood treating facility, within the southern extent of the city of Oroville, California. The operations of the wood treating facility included injections of preservatives under pressure into wood products such as railroad ties and telephone poles to prevent deterioration by insects and fungi. Chemical fires, wood treatment operations, product and chemical handling methods, and wastewater handling procedures contaminated soil On-Property, and groundwater both On and Off-Property. The primary human health risks associated with On-Property soil was via incidental ingestion or inhalation of soil contaminated with PCP, PAHs, metals, polychlorinated dibenzo-p-dioxins/polychlorinated dibenzofurans (dioxins), and creosote. Another human health risk was the ingestion of groundwater contaminated with PCP, which was found in residential wells over one mile south of the Site.

Historically, there were three somewhat distinct contaminated groundwater plumes. The Eastern On-Property and Off-Property plumes were both primarily contaminated with PCP, while the Western On-Property plume contained creosote. The majority of drinking water supply for residents who lived near the Site came from groundwater from residential wells. However, since 1986, when Site related PCP contamination was discovered in the wells, Beazer has provided an alternative water supply (South Feather Water and Power Agency) to homes in the affected area.

2.2. Remedy Selection

EPA selected soil and groundwater remedies at the Koppers Superfund Site in its September 13, 1989, Record of Decision (ROD). The remedies addressed four On-Property soil units (designated S1 through S4) for soil contamination, and one combined groundwater unit for On-Property and Off-Property groundwater contamination. The groundwater component of the remedy included extraction and treatment of the contaminated groundwater and providing an alternative water supply to residents with contaminated drinking water wells. The soil component of the remedy consisted of various in-situ treatment technologies. (See Table 2)

Table 2. Soil Areas

Soil Unit Number	Area	Technology Selected
S1	Former pole-wash area and areas along the drip track leading to the process area, areas east and south of the process area, the fire debris site at the eastern side of the western spray field, and the surface soils throughout the treated wood transport areas.	In-situ biodegradation
S2	Former creosote pond and cellon blowdown areas, an area of creosote-contaminated soil along the L-P ditch, and sediments in offsite drainage ditches and ponds southwest of the Site.	Excavation and soil washing
S3	Wood-treating process area used in normal production operations at the Site.	Capping
S4	East and south of the process area, where wood treated with metals was stored.	Excavation and soil fixation

In 1991, EPA modified the soil component remedy in an Explanation of Significant Differences (ESD) which clarified that the soil remedial objectives applied only to soils from the ground surface to five feet bgs, and that EPA would establish future cleanup standards for soils deeper than five feet bgs to protect groundwater. EPA also required institutional controls, land use restrictions prohibiting among other things, residential use of the plant property, until EPA determined that the Site was clean enough to remove those restrictions.

In 1996, EPA issued ROD Amendment No. 1 changing the soil and groundwater cleanup standards based on continued industrial use, while prohibiting future residential use through institution controls (e.g., deed restrictions). Along with the reversal from future residential land use, a new soil remedy was selected. Instead of various in-situ treatment/stabilizations selected for each soil unit, all contaminated soils, from the four soil units as well as soil from other contaminated areas, not accessible at that time, were to be disposed into an engineered on-site landfill (Soil Disposal Cell). EPA determined that development of cleanup standards for subsurface soils deeper than five feet below ground surface was not needed; this determination in the 1996 ROD Amendment supersedes the requirement of the 1991 ESD. The 1996 ROD Amendment also included long-term management and maintenance of the landfill cover and groundwater monitoring around the landfill.

In 1999, EPA issued ROD Amendment No. 2 modifying the groundwater remedy to include a Technical Impracticability (TI) Waiver for a 4-acre area of the Western On-Property plume (Figure 2) encompassing the former creosote pond and cellon blowdown areas. EPA determined a need for the TI Waiver because it is technically impracticable from an engineering perspective to achieve the groundwater cleanup standards in the TI Zone due to the presence of dense non-aqueous phase liquid.

The 1999 ROD Amendment No. 2 also augmented the pump-and-treat remedy for the Eastern On-Property groundwater plume, by adding enhanced in-situ bioremediation (i.e., injecting nutrients) into select On-Property wells. EPA additionally selected a contingency remedy of monitored natural attenuation. Finally, EPA selected the implementation of institutional controls through deed restrictions to prevent access to groundwater, surface disturbances and the addition of new sources of surface water to groundwater in the TI Zone.

The final remedial action objectives, although not explicitly stated as such in the ROD, ROD amendments or ESD, are as follows: 1) groundwater containment in the TI Zone, 2) restoration of groundwater to beneficial uses outside the TI Zone, and 3) prevention of exposure to contaminated soil and groundwater. Finally, the remedy requires maintenance and monitoring of the landfill to assure that the landfill does not release any contaminants to groundwater. Table 3 presents the soil and groundwater cleanup standards for the Site.

Table 3. Cleanup Standards

Media	Chemical	Cleanup Standard from Decision Document	Source of Clean-up Standard
Soil	Arsenic	7.15 mg/kg	Background; 1996 ROD Amendment 1
	Chromium	181 mg/kg	Background; 1996 ROD Amendment 1
	Carcinogenic PAHs[a]	2.6 mg/kg	10^{-5} cancer risk for industrial worker; 1996 ROD Amendment 1
	Dioxins	1 µg/kg	Cancer risk as determined in 1996 ROD Amendment 1
	PCP	79 mg/kg	10^{-5} cancer risk for industrial worker; 1996 ROD Amendment 1
Groundwater	Benzene	1 µg/l	California MCL; 1989 ROD
	Ethylbenzene	680 µg/l	California MCL; 1989 ROD
	Total Xylenes	1,750 µg/l	California MCL; 1989 ROD
	Isopropyl Ether	2,800 µg/l	Cancer risk as determined from ARARs, 1999 ROD Amendment 2
	Carcinogenic PAHs[a]	7 ng/l	Cancer risk as determined from ARARs, 1999 ROD Amendment 2
	Dioxins	0.53 µg/l	10^{-6} excess cancer risk; 1989 ROD
	Pentachlorophenol	1 µg/l	Federal MCL; 1999 ROD Amendment 2
	Arsenic	27 µg/l	Background; 1999 ROD Amendment 2
	Barium	1,000 µg/l	California MCL; 1999 ROD Amendment 2
	Boron	1,200 µg/l	Cancer risk as determined from ARARs, 1999 ROD Amendment 2
	Chromium	50 µg/l	California MCL; 1999 ROD Amendment 2
	Copper	1,000 µg/L	California Secondary MCL; 1999 ROD Amendment 2

2.3. Remedy Implementation

2.3.1. Soil Remedial Actions

Soil treatability studies were conducted in 1993 (pilot testing for soil washing), 1994 (soil fixation treatability study), and 1995 (pilot testing for bioremediation) to evaluate the effectiveness and implementability of the ROD-specified treatment remedies. Upon completion of these studies, EPA found that the proposed remedies were not effective in removing COCs and were not implementable.

During the in-situ bioremediation treatability study for soils in unit S1, high levels of dioxins were found in the test plots, and a removal action was ordered by EPA in 1995. This contaminated soil was landfilled onsite in a RCRA-designated Class I landfill, later referred to as Soil Disposal Cell No. 1. The following year EPA issued ROD Amendment No. 1, which changed the soil remedies for all four soil units to On-Property soil disposal.

Beazer constructed Soil Disposal Cell No. 2, a RCRA-designated Class I landfill, adjacent to Soil Disposal Cell No. 1, near the northern boundary of the Site (Figure 2). Between 1996 and 2002, Beazer excavated and placed 146,930 cubic yards of contaminated soil and building materials in Soil Disposal Cell No. 2. In 1997 and 1998, contaminated soil was excavated from the former cellon blowdown area, the former pond and the pole washer area and placed in Soil Disposal Cell No. 2. In March 2001, following Koppers' closure of the wood treatment plant, approximately 40,000 cubic yards of soil from the operations area, which had been capped as an interim remedy during plant operations, was excavated and placed in the on-site Soil Disposal Cell No. 2. This final action completed soil remediation at the Site and Soil Disposal Cell No. 2 closure occurred in September 2002. The Site achieved construction completion when EPA signed the Preliminary Close Out Report on September 4, 2003. This report documented completion of all remedial construction activities for Koppers Superfund Site in accordance with closeout procedures for NPL sites.

In September 2003, Beazer, the owner of the property where Koppers operated, and the DTSC completed negotiations on a land use covenant intended to protect current and future users of the Site, because the soil cleanup actions do not allow for unrestricted use of the property (per ROD Amendment No. 1). The land use covenant incorporates restrictions that prohibit certain uses of the property and prohibit certain activities.

2.3.2. Groundwater Remedial Actions

Beginning in March 1986, Beazer began connecting 34 residences downgradient of the Site affected by PCP contaminated groundwater to the Oroville-Wyandotte Irrigation District (now South Feather Water and Power Agency) water supply. Although this remedial action predated the decision document, the 1989 ROD formalized the provision of an alternative water supply to those affected by groundwater contamination.

Beazer constructed two groundwater pump-and-treat system systems (one On-Property and one Off-Property) in 1993 and 1994. The groundwater pump-and-treat system for the Eastern On-Property plume includes two extraction wells (EW-1 and EW-2/replaced by EW-2R), and two injection wells (IW-3 and IW-4) for re-injecting treated water. Groundwater treatment utilizes air stripping, multimedia filters, and granular activated carbon (GAC) to achieve the removal of COCs. Beazer constructed the Off-Property groundwater treatment system approximately two miles south of the Site. The system included two extraction wells (EW-3 and EW-4), a treatment plant, two injection wells (IW-1 and IW-2), and approximately 1,500 feet of pipelines. Initially treated water was discharged to Wyman Ravine, but was later reinjected via injection wells IW-1 and IW-2.

In September 1994, Beazer installed a product recovery well (PR-1) in the former cellon blowdown area and former creosote pond area (i.e., Western Plume) to evaluate whether the subsurface pools of creosote at the Site could be effectively remediated by draining the fluid into a recovery well.

On December 28, 1995, EPA approved suspension of the Off-Property remediation system. Ongoing monitoring demonstrated that COC concentrations in groundwater had been reduced below cleanup standards near the extraction wells, and further pumping of EW-3 and EW-4 would draw contamination downgradient. Analysis of monitoring results determined that more than 95% of the residual plume naturally attenuated during the time the Off-Property extraction wells operated. EPA approved the deconstruction and removal of the Off-Property groundwater extraction and treatment system in 2007, 12 years after the system was shut down because of the significant decline in PCP concentrations.

In April 1998, Beazer stopped paying for municipal water (through the alternative water supply) at 26 of the original 34 homes with contaminated residential wells because the groundwater in the wells of those residences met the PCP ROD cleanup standard.

In August 1998, Beazer added in-situ bioremediation of Off-Property groundwater to augment degradation of PCP. Enhancements (magnesium peroxide and di-ammonium phosphate) were added intermittently to wells 26, RI-11, and RI-20A. Performance evaluation of this system relied on data from Off-Property monitoring wells RI-2, RI-3, RI-10, RI-12, and RI-16B.

Beazer completed the construction of well MW-8, near the center of the Eastern On-Property Plume, in 2002. This additional well allows the remedial system to contain and extract groundwater with elevated boron concentrations from the former Dri-Con and chromated copper arsenate Tank Area. Since treatment of boron is not possible with GAC or air stripping, extraction and blending of groundwater from well MW-8 with other influent to the treatment system is the de facto remedy for boron.

EPA approved ending the Off-Property in-situ bioremediation program in September 2009. After the program, each of the wells where enhancements had been added was sampled for four consecutive quarters. PCP was not detected in the analytical sampling results collected from any of these wells during the four quarterly events.

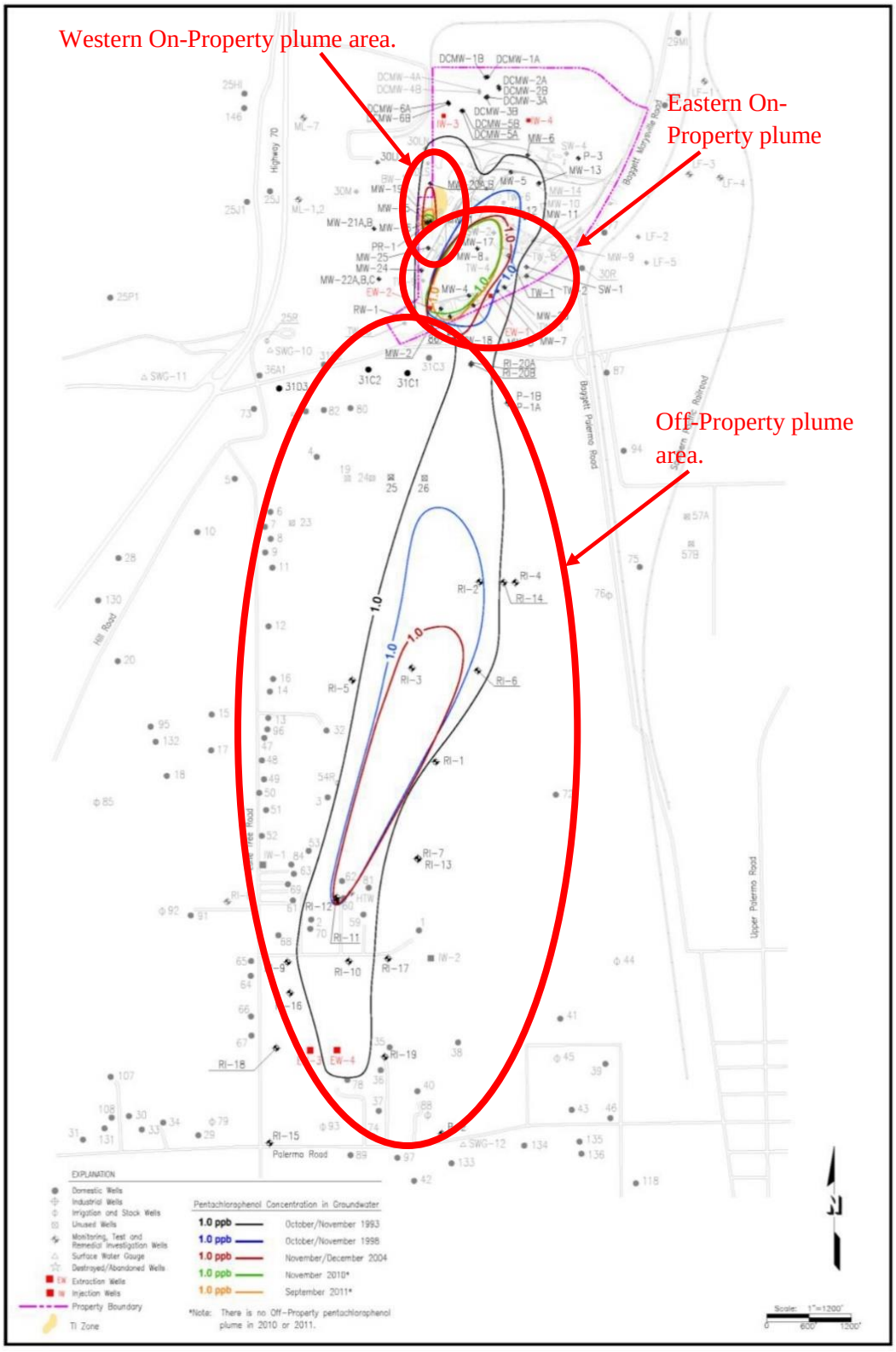


Figure 4. On-Property and Off-Property Pentachlorophenol Plume Comparison from 1993 through 2011 (Tetra Tech, 2013).

2.3.3. Institutional Controls

Butte County officially recorded a *Covenant to Restrict Use of Property* for the Koppers Company, Inc. Superfund Site on November 12, 2003 (Butte County official records serial no. 2003- 7930, Table 4). DTSC has the primary role for enforcement of the institutional controls for the Site. The covenant, generally:

- Restricts future Site uses to industrial/commercial uses;
- Requires soil management whenever excavation occurs;
- Restricts access to, and use of, contaminated groundwater beneath the Site;
- Requires that effective drainage patterns be maintained property-wide;
- Prohibits irrigation or other activities that introduce water to subsurface soils;
- Provides right of entry and access for implementing remediation and operation and maintenance (O&M); and
- Prohibits interference with remedial systems or system components.

Table 4. Summary of Implemented Institutional Controls (IC)

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s) 035-470-xxx	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil and Groundwater	No	Yes	005, 029, 031, 008, 009, 022, 032, 033, 034, 035, 036, 028, 030, 037	As noted in bullet points above.	Environmental Restriction 12 November 2003

2.4. Operation and Maintenance (O&M)

System operations, operations, and maintenance are limited to upkeep of monitoring wells, operation and maintenance of the groundwater extraction, treatment and reinjection systems, Soil Disposal Cells, fencing, and the product recovery well located On-Property. As noted above Beazer deconstructed and removed the Off-Property treatment system in 2007 and stopped sampling Off-Property monitoring wells in 2013.

3. Progress Since the Last Five-Year Review

3.1. Previous Five-Year Review Protectiveness Statement and Issues

The protectiveness statement from the 2013 FYR for the Koppers Company, Inc Site stated the following:

> *The remedy at the Koppers Company, Inc. Superfund Site is protective of human health and the environment because all exposure pathways that could result in unacceptable risk are being controlled. Residents within the former plume have been supplied with an alternate source of drinking water. A deed restriction on the property prevents unacceptable exposure to onsite soil contamination and restricts the property for industrial use only. Current data indicate that the groundwater remediation is progressing and that the remedy is functioning as required to achieve groundwater remediation standards.*

The 2013 FYR did not identify any issues or recommendations.

3.2. Work Completed at the Site During this Five-Year Review Period

Beazer performed an optimization evaluation of the existing remedy resulting in recommendations to remove monitoring wells from the monitoring network or to reduce the frequency of sampling or to otherwise optimized the remedy (TetraTech, 2013). For On-Property wells MAROS software was used to evaluate individual well concentrations trends over time and evaluate Site cleanup status on a constituent by constituent basis, using data sufficiency analysis. Off-Property wells were evaluated in a similar manner. As a result of this work, EPA approved a number changes to On-Property monitoring well sampling, the termination of all Off-Property monitoring well sampling, decreasing the number of wells that receive oxygen enhancements and reducing the frequency of Soil Disposal Cell monument surveying. In April 2015 EPA approved Beazer's request for abandonment of all Off-Property wells, and three On-Property monitoring wells in April 2015. Most of the Off-Property wells are located on private property and are owned by individuals, Beazer offered to abandon these wells at no cost to the land owners: many Off-Property owners declined or did not respond to Beazer's offer to abandon wells. Ten of the 36 Off-Property wells and three On-Property monitoring wells (Figure 5) were destroyed in accordance with State of California Department of Water Resources Water Well Standards (TetraTech, 2016).

From 2013 to 2018, the On-Property groundwater extraction and treatment system removed and treated approximately 1 billion gallons of water over this five-year period. On-going maintenance of the On-Property treatment system included replacing GAC media in the fall of 2015 and Air Stripper media in August 2016.

The pumping rate of EW-2 was observed to be lower than normal in 2015. Beazer performed rehabilitation activities in late 2015 and noticed significant failures in the screen from 57 feet bgs to the total depth (80 ft. bgs). EW-2 was abandoned and a replacement well, EW-2R, was installed in April 2016.

Annual Soil Disposal Cell monitoring and five-year elevation monument surveying occurred in 2017, as scheduled within the reporting timeframe of this FYR. No change in elevation was observed.

No further changes to the remedy or the site have occurred over the last five years (2013-2018).

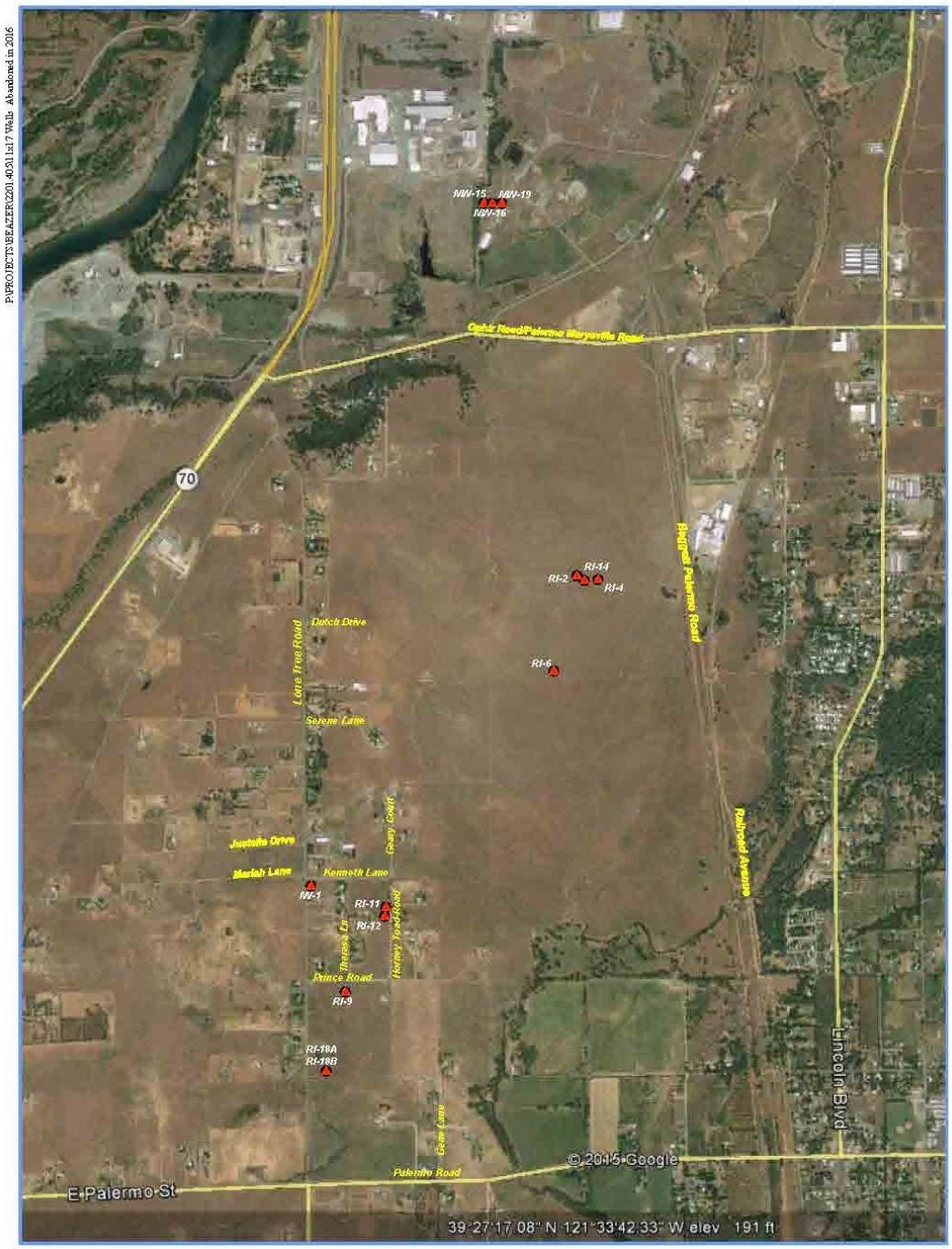


Figure 5. Wells abandoned in September 2015 (Tetra Tech, 2016).

4. Five-Year Review Process

4.1. Community Notification, Involvement and Site Interviews

EPA posted a public notice in the *Chico Enterprise-Record*, on March 28, 2018, stating that there was a Five-Year Review and inviting the public to submit any comments to EPA. The results of the review and the report will be made available at the Site information repositories located at Butte County Public Library at 1820 Mitchell Avenue, Oroville, CA 95966, at Mariam Library at 400 West First Street, Chico, CA 95929 and at https://www.epa.gov/superfund/koppersoroville.

On February 15, 2018, USACE and EPA conducted two interviews over the phone with Beazer's contractor and with a RWQCB representative. The interviewees mentioned the following successes: contaminant reduction in Off-Property monitoring wells, the related well abandonments, and continued operation of the On-Property groundwater treatment system. The interviewees identified some O&M difficulties over the past five years including well screening/development issues and vandalism. In 2016, EW-2 was replaced. This was necessary due to a compromise of the well screen that could not be repaired. A new extraction well was installed without any negative effects to containment or the remedy. Periodic vandalism to remedial system components were noted but damage did not impact the remedy's protectiveness.

On March 28, 2018, Jeff Weiss, USACE, conducted a site inspection with Site O&M personnel after the site inspection. Both the On-Property groundwater extraction and treatment system and soil disposal cells are functioning as intended. O&M has been maintained at an adequate level to ensure that the remedy continues to function and protect human health and the environment. The only concerns noted were related to vandalism and declining pumping rate for MW-8.

4.2. Data Review

Contamination at the Site is currently limited to On-Property sources including the Eastern Plume, Western Plume (TI Zone) and Soil Disposal Cells. Off-Property groundwater achieved the remediation objective of restoring groundwater to its beneficial use, as a drinking water supply, prior to this current Five-Year Review period and the Off-Property groundwater monitoring ceased in June 2013.

Eastern On-Property Plume

The remediation of the On-Property Plume has almost achieved its remedial action objective to restore groundwater to beneficial use outside the Technical Impracticability Zone. Currently, all the PCP concentrations from groundwater samples are below the cleanup goal of 1 µg/L, with the exception of MW-8 (Figure 7). MW-8 is located near the center of the PCP plume and was added as an extraction well in August 2002, primarily to increase the removal of boron which has remained above the MCL of 1,200 µg/L. During this review period, PCP concentrations ranged from 220 µg/L in November 2016 to non-detect with the most recent value in December 2017 of 27 µg/L; boron concentrations ranged from 2000 µg/L in December 2014 to 860 µg/L in July 2015 with the most recent value of 1700 µg/L in December 2017. Mann-Kendall trend analyses using the PCP and boron data from MW-8 indicates PCP is stable

while boron is probably increasing (Appendix B). The increasing trend of boron at MW-8 is likely due to the extraction well drawing in higher boron concentrations.

The On-Property remediation system prevents migration of the plume and is making progress toward cleanup standards (PCP 1 µg/L and Boron 1200 µg/L) and returning groundwater to beneficial use as a drinking water supply. The treatment system consists of three extraction wells (EW-1, EW-2R and MW-8), a treatment system, two injection wells (IW-3 and IW-4) and in-situ bio enhancement added quarterly at monitoring wells: MW-1, MW-2 and MW-4. Extraction wells EW-1 and EW-2R are located down gradient of the source area and each pump approximately 150 gallons per minutes. During the previous five years PCP concentrations from extraction wells EW-1 and EW-2 have been below the reporting limit of 0.48 µg/L, and therefore, are not removing significant PCP mass. However, these extraction wells do provide hydraulic control and it is believed that in-situ bioremediation may have a greater impact on PCP concentration reduction.

The hydraulic capture is verified by comparing groundwater flow direction and gradients over time. The flow direction and gradient were compared over time using groundwater contour maps that were based on groundwater elevations collected from 34 On-Property wells. The most recent groundwater contour map from December 2017 had a similar flow direction and gradient as the contour maps from the same time of year during the previous five years (Appendix B) indicating groundwater capture has not changed.

In addition to monitoring the PCP concentrations at the extraction wells, two monitoring wells (MW-3, and 86) are sampled for PCP along the downgradient property line. PCP concentrations have been non-detect at MW-3 during the previous five years. Well 86 is the furthermost downgradient monitoring well for the PCP plume and concentrations were non-detect during two of the four sampling events during the previous five years with detections ranging from 3.5 µg/L in November 2014 and 1.3 µg/L in November 2017 (Appendix B).

Table 5. PCP Concentrations in Select Wells

Date	Well 86 PCP Concentration (µg/L)	MW-8 PCP Concentration (µg/L)
12/19/13		120
8/12/2014		<0.48
11/6/2014	3.5	
12/23/2014		1.6
7/8/2015		41
11/15/2015	<0.5	
12/10/2015		150
11/2/2016	<0.47	220
8/23/2017		36
9/20/2017		87
10/30/2017		68
11/28/2017		84
12/6/2017	1.3	
12/19/2017		27

Western On-Property Plume (TI Zone)

The contamination within the TI Zone has not migrated outside the TI Zone over the past five years. Groundwater samples collected annually from well MW-24, located downgradient of the TI Zone and used to monitor containment, have been non-detect during the previous five years.

A product recovery well (PR-1) removes creosote from the TI Zone, as required in ROD Amendment 2. According to the annual reports from the previous five years approximately 50 to 100 gallons of free product is removed from by PR-1 each quarter. The second ROD amendment estimates that approximately one million gallons of free product may be within the TI Zone footprint. Although the creosote removed from the product recovery well is not significantly reducing the overall quantity of creosote, its continued operation meets the ROD Amendment 2 requirement that PR-1 operate until creosote recovery is less than one gallon per year at PR-1.

Table 6. Creosote Removal from the Product Recover Well

Year	Creosote Product Removal (gallons)	Creosote Emulsion Removal (gallons)	Total Creosote Removed (gallons)
2013	125	62	187
2014	150	64	214
2015	275	186	461
2016	117	102	218
2017	111	91	202

On-Property Soil Disposal Cell

The On-Property Soil Disposal Cells are lined and capped, all components appear to be in good condition and there is no indication of any contaminant containment issues with any of the disposal cells. Groundwater analytical data, collected over the last five years, from six pairs of monitoring wells, installed around the perimeter of the cells and sampled annually for Site COCs, have reported no detections of any COCs above ROD cleanup standards.

Review of elevation monument survey data for the Soil Disposal Cells indicate no settlement has occurred within the past five years that could potentially compromise cell integrity and allow infiltration into or out of the Soil Disposal Cells.

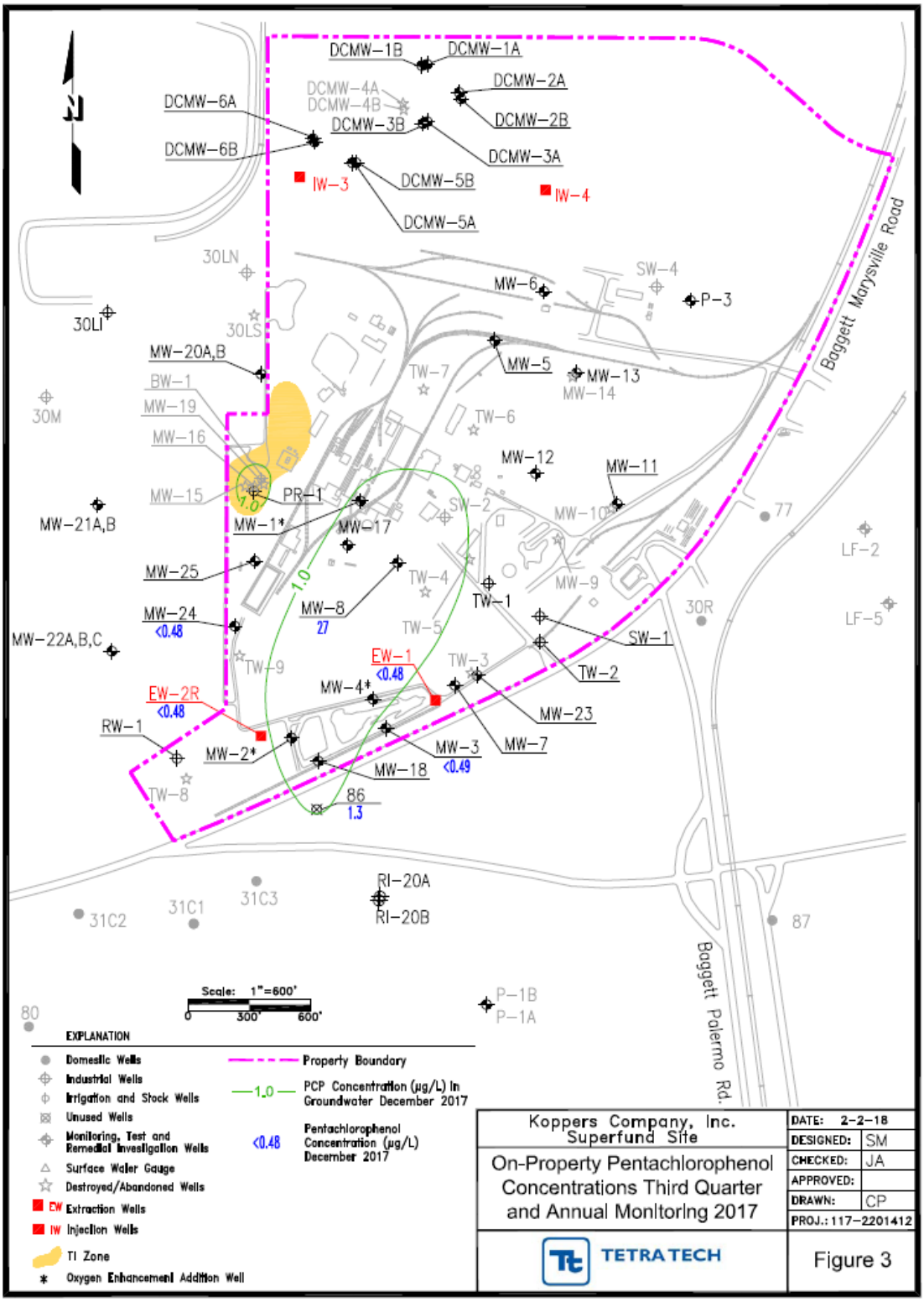


Figure 7. PCP Concentrations from third quarter 2017 (Tetra Tech, 2017)

4.3. Site Inspection

The inspection of the Site occurred on March 28, 2018 In attendance were Daewon Rojas-Mickelson, EPA, Jeff Weiss, USACE, Bill Bergmann, Central Valley Regional Water Quality Control Board (RWQCB), Jennifer Abrahams, Tetra Tech, Inc., Marvin Raasch and Casey Wilmunber of Field Technical Services, and Carolyn Yee and Jim Rohrer, DTSC. The purpose of the inspection was to assess the protectiveness of the remedy (Appendix H).

Activities of the inspection included a safety briefing and inspection of the On-Property treatment plant, extraction wells, injection wells, product recovery well and Soil Disposal Cells. The Soil Disposal Cell caps were observed to be in good condition. The Site has continued to have minor issues with vandalism including theft of dedicated sampling pumps, theft of wiring at extraction wells, damage to treatment system and dumping of garbage.

5. Technical Assessment

5.1. Question A: Is the remedy functioning as intended by the decision documents?

The remedy at the Koppers Company, Inc Superfund Site is functioning as intended. The On-Property groundwater extraction and treatment remedy continues to operate to control the potential migration of the limited remaining Eastern Plume contamination. The On-Property groundwater outside the TI Zone has been restored to beneficial use, except for the area near MW-8. TI Zone downgradient groundwater monitoring results show there is no migration of COCs from the TI Zone, while the product recovery well continues to remove contamination. The Off-Property PCP groundwater plume has been remediated to the cleanup standard and the aquifer restored to its beneficial use as a drinking water supply.

Contaminated soils have been excavated, and transported to On-Property Soil Disposal Cells that meet RCRA requirements. This action has reduced Site exposures from contaminated soils to acceptable levels. Because On-Property soils and groundwater contamination still exists above levels allowing unlimited use or unrestricted exposure, Institutional Controls, landfill caps, and fencing ensure that exposure pathways to residual contaminated soils and groundwater do not exist. Vandalism has occurred at the Site but damage to the remedies has not impacted the protectiveness of the remedies. No opportunities exist to improve the performance and/or cost of the remedy.

Institutional Controls have been recorded to effectively prevent exposures by restricting groundwater extraction, limiting land use to industrial/commercial and requiring soil management during excavation. Access controls also exist at the Site to prevent equipment tampering and vandalism.

5.2. Question B: Are the exposure assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of Remedy Selection Still Valid?

The exposure assumptions used at the time of the remedy selection are still valid. COC cleanup standards have changed for ethylbenzene, arsenic, and copper since the 1999 ROD amendment but these changes do not impact the protectiveness of the remedy since COC groundwater concentrations are below the current ARARs. Pertinent ARARs from decision documents were reviewed for any changes that would affect protectiveness (Appendix C). This review found no changes to ARARs that would affect the protective of the remedies implemented at the Site. The groundwater remedial objectives of containment in the TI Zone and restoration of groundwater to beneficial use outside the TI Zone are still valid and are still progressing On-Property. Exposure to contaminated groundwater within the TI Zone and On-Property is controlled due to ICs and fencing.

5.3. Question C: Has Any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?

No further information has come to light that would call into question the protectiveness of the remedy.

6. Issues/Recommendations

There are no issues identified for the Koppers Company Inc. Superfund Site that affect current or future protective of the remedy.

The following additional observation was made regarding the possibly increasing boron concentrations Eastern On-Property Plume. It is believed that the boron concentrations are being pulled in from a high boron concentration area, but the current treatment system is not effective at removing boron. Therefore, achieving the cleanup level for boron may be challenging. There is no risk of exposure.

7. Protectiveness Statement

Table 7. Protectiveness Statement

Protectiveness Statement(s)	
Operable Unit: 01	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy at the Koppers Company, Inc. Superfund Site is protective of human health and the environment because all exposure pathways that could result in unacceptable risk are being controlled. A deed restriction restricts the property for industrial/commercial use only. The Off-Property groundwater has been restored to beneficial use. Analysis of current data indicate that the groundwater remediation is progressing and that the remedy is functioning as required to achieve groundwater remediation standards.	

8. Next Review

The next five-year review report for the Koppers Company Inc. Superfund Site is required five years from the completion date of this review.

Appendix A: List of Documents Reviewed

Dames and Moore, 1988. *Final Endangerment Assessment, Koppers Company Feather River Plant Superfund Site.* November 1988.

Dames and Moore, 1996. *Site-Wide Soils Remedy Report*. March 1996.

Environmental Protection Agency (EPA). 1989. *EPA Superfund Record of Decision: Koppers Co., Inc. (Oroville Plant) EPA ID: CAD009112087 OU1. Oroville, CA.* September 13, 1989.

EPA. 1991. *EPA Superfund Explanation of Significant Differences: Koppers CO., Inc. (Oroville Plant) EPA ID: CAD009112087 OU01. Oroville, CA.* January 29, 1991.

EPA. 1996. *EPA Superfund Record of Decision Amendment: KOPPERS Co., Inc. (Oroville Plant) EPA ID: CAD009112087 OU01. Oroville, California.* August 29, 1996.

EPA. 1999. *Amendment #2 to the Record of Decision for the Soil and Ground Water Operable Unit, KOPPERS Company, Inc. Superfund Site. Oroville, California.* September 23, 1999.

EPA. 2003. *Preliminary Closeout Report for Koppers Company, Inc., Superfund Site, Oroville, California.* September 2003.

EPA, 2013. *Fourth Five-Year Review Report for Koppers Company, Inc. Superfund Site. Oroville, Butte County, California.* August 28, 2013.

HIS GeoTrans, 1999. *Final Evaluation of Technical Impracticability of Groundwater Restoration in the Former Creosote Pond and Cellon Blowdown Area, Koppers Company, Inc. Superfund Site (Feather River Plan).* March 8, 1999.

Tetra Tech GEO, 2012a. *Off-Property Groundwater Remedy Attainment Evaluation and Exit Strategy. Koppers Company, Inc. Superfund Site (Feather River Plant). Oroville, California.* October 5, 2012.

Tetra Tech GEO, 2012b. *Recommended Optimized Remedial Action Activities Post-Closure Monitoring Disposal Cells 1 and 2. Koppers Company, Inc. Superfund Site (Feather River Plant). Oroville, California.* October 5, 2012.

Tetra Tech GEO, 2012c. *Recommended Optimized Remedial Action Activities Technical Impracticability Zone. Koppers Company, Inc. Superfund Site (Feather River Plant). Oroville, California.* October 5, 2012.

Tetra Tech GEO, 2013. *On-Property Groundwater Remedy Attainment Evaluation Response, EPA letter dated June 14, 2013. Koppers Company, Inc. Superfund Site (Feather River Plant). Oroville, California.* August 30, 2013.

Tetra Tech GEO, 2014. *Annual 2013 Remedial Action Groundwater Monitoring Report. Koppers Company, Inc. Superfund Site (Feather River Plant). Oroville, California.* April 11, 2014.

Tetra Tech GEO, 2015. *Annual 2014 Remedial Action Groundwater Monitoring Report. Koppers Company, Inc. Superfund Site (Feather River Plant). Oroville, California.* March 3, 2015.

Tetra Tech GEO, 2016a. *Annual 2015 Remedial Action Groundwater Monitoring Report. Koppers Company, Inc. Superfund Site (Feather River Plant). Oroville, California.* April 4, 2016.

Tetra Tech GEO, 2016b. *Documentation of Abandoned Remedial Investigation Wells. Koppers Company, Inc. Superfund Site (Feather River Plant). Oroville, California.* April 4, 2016.

Tetra Tech GEO, 2017. *Annual 2016 Remedial Action Groundwater Monitoring Report. Koppers Company, Inc. Superfund Site (Feather River Plant). Oroville, California.* January 30, 2017.

Tetra Tech GEO, 2017. *Semiannual 2017, Remedial Action Groundwater Monitoring Report, Koppers Company, Inc Superfund Site (Feather River Plant) Oroville, California*. July 26, 2017

Tetra Tech GEO, 2018. *Annual 2017 Remedial Action Groundwater Monitoring Report. Koppers Company, Inc. Superfund Site (Feather River Plant). Oroville, California.* February 12, 2017.

Appendix B: Data Review

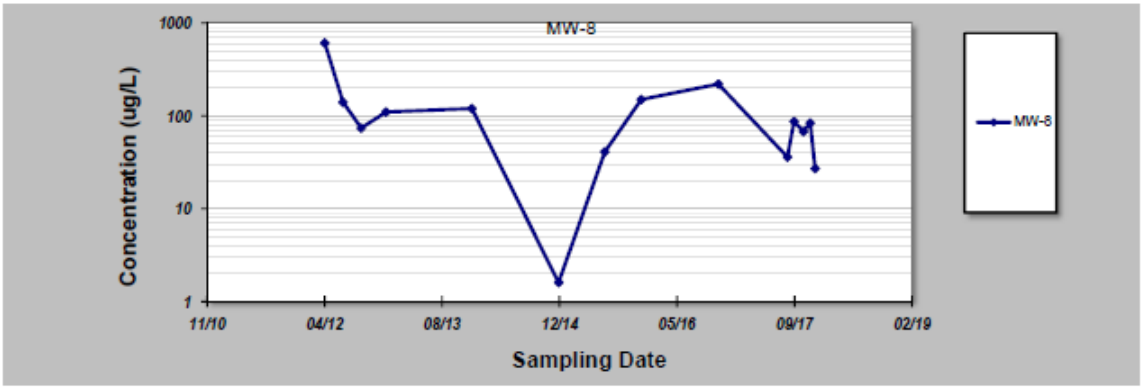
Appendix B includes tables and figures used for the data review and Section 4.2 of the report provides the conclusions from the data review. Figures B-1 and B-2 are Mann-Kendall tables and plots for boron and PCP data collected at well MW-8 during the previous five years. Well MW-8 was the only location where enough data was collected to use the Mann-Kendall method. Well 86 is the down gradient monitoring well the eastern On-Property plume. Figures B-3 through B-7 are the groundwater contour plots from the fourth quarter from 2013 to 2017. The groundwater contours were reviewed to ensure the flow direction did not change during the previous five years.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	1-Apr-18	Job ID:	5-Year Review
Facility Name:	Koppers Superfund Site	Constituent:	PCP
Conducted By:	Jeffrey Weiss	Concentration Units:	ug/L

Sampling Point ID: MW-8

Sampling Event	Sampling Date	PCP CONCENTRATION (ug/L)
1	2-Apr-12	610
2	19-Jun-12	140
3	4-Sep-12	74
4	19-Dec-12	110
5	19-Dec-13	120
6	23-Dec-14	1.6
7	8-Jul-15	41
8	10-Dec-15	150
9	2-Nov-16	220
10	23-Aug-17	36
11	20-Sep-17	87
12	30-Oct-17	68
13	28-Nov-17	84
14	19-Dec-17	27
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.19
Mann-Kendall Statistic (S):		-29
Confidence Factor:		93.7%
Concentration Trend:		Prob. Decreasing



Notes:

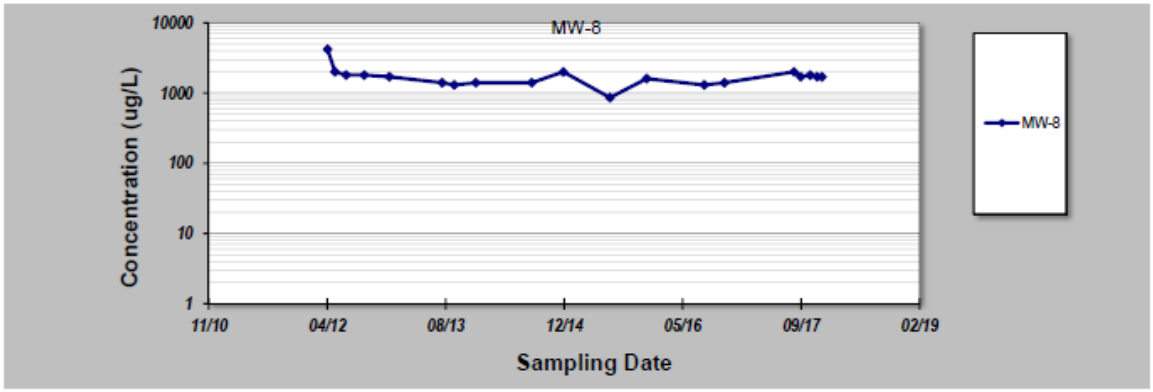
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

Figure B-1. Mann-Kendall results for PCP concentrations at MW-8.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	1-Apr-18	Job ID:	5-Year Review
Facility Name:	Koppers Superfund Site	Constituent:	Boron
Conducted By:	Jeffrey Weiss	Concentration Units:	ug/L
Sampling Point ID:	MW-8		

Sampling Event	Sampling Date	BORON CONCENTRATION (ug/L)
1	2-Apr-12	4200
2	3-May-12	2000
3	19-Jun-12	1800
4	4-Sep-12	1800
5	19-Dec-12	1700
6	30-Jul-13	1400
7	19-Sep-13	1300
8	19-Dec-13	1400
9	12-Aug-14	1400
10	23-Dec-14	2000
11	8-Jul-15	860
12	10-Dec-15	1600
13	9-Aug-16	1300
14	2-Nov-16	1400
15	8/23/2017	2000
16	9/20/2017	1700
17	30-Oct-17	1800
18	28-Nov-17	1700
19	19-Dec-17	1700
20		
Coefficient of Variation:		0.38
Mann-Kendall Statistic (S):		-26
Confidence Factor:		80.7%
Concentration Trend:		Stable



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

Figure B-2. Mann-Kendall results for Boron concentrations at MW-8.

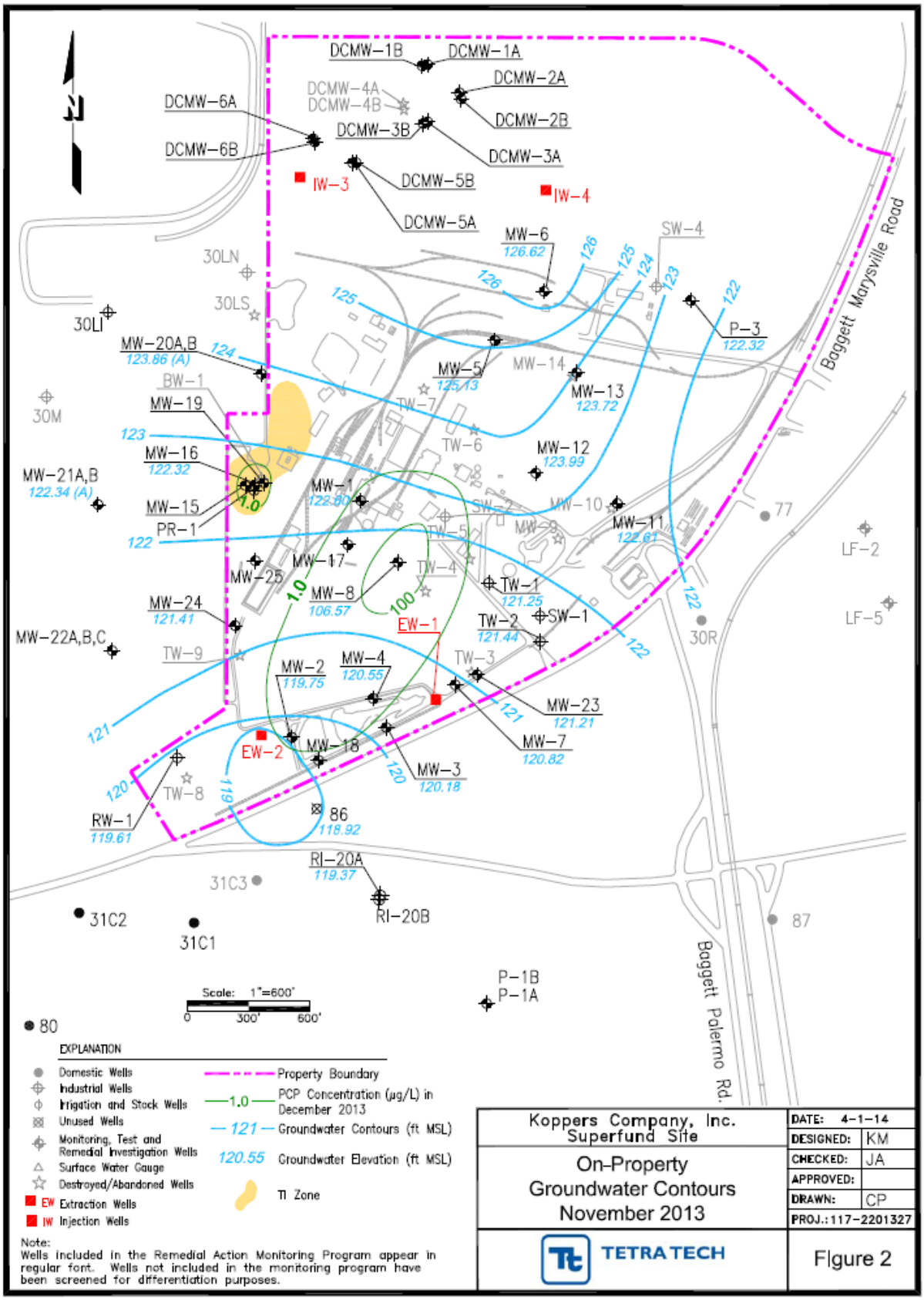


Figure B-3. Groundwater contours from November 2013.

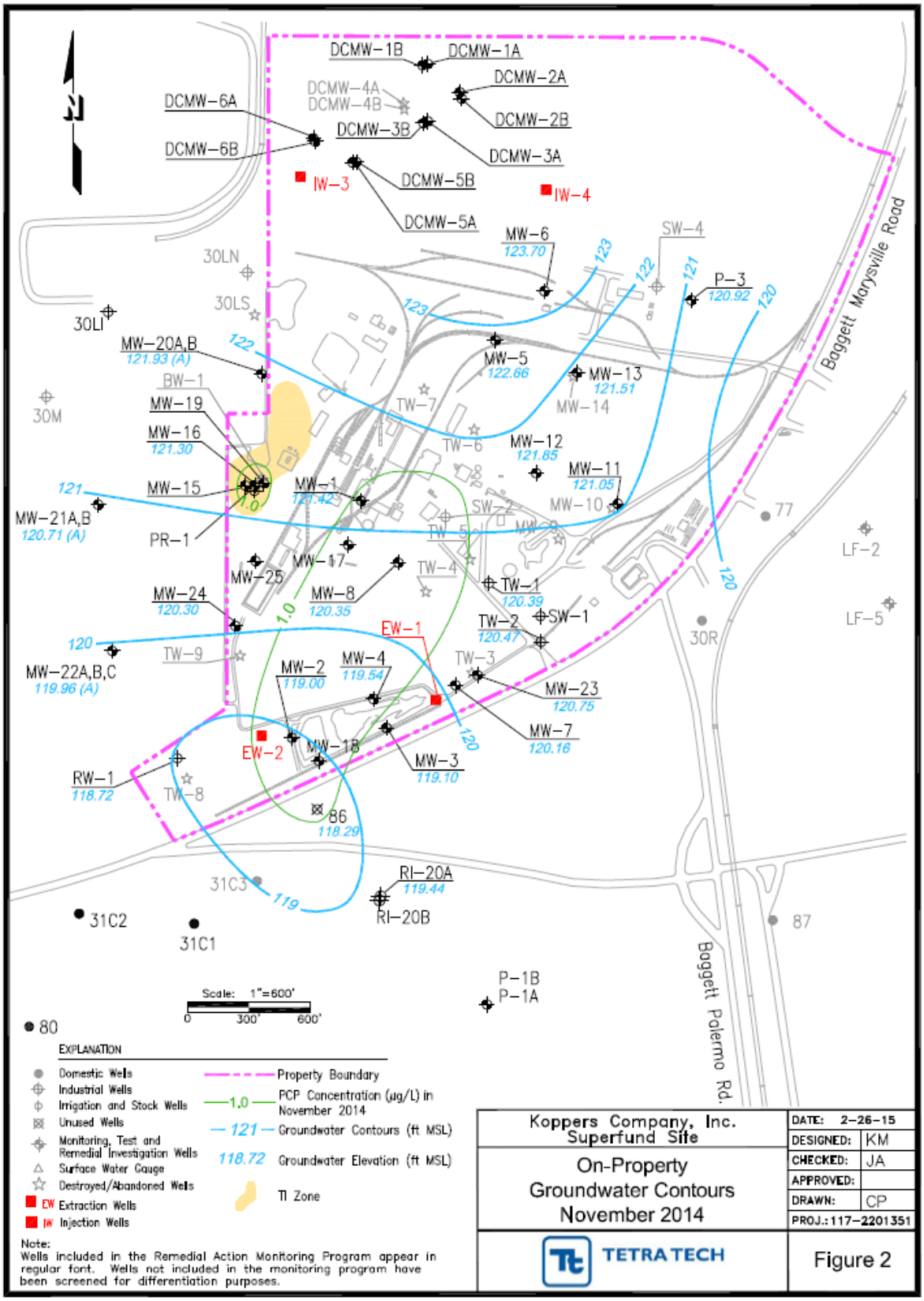


Figure B-4. Groundwater contours from November 2014.

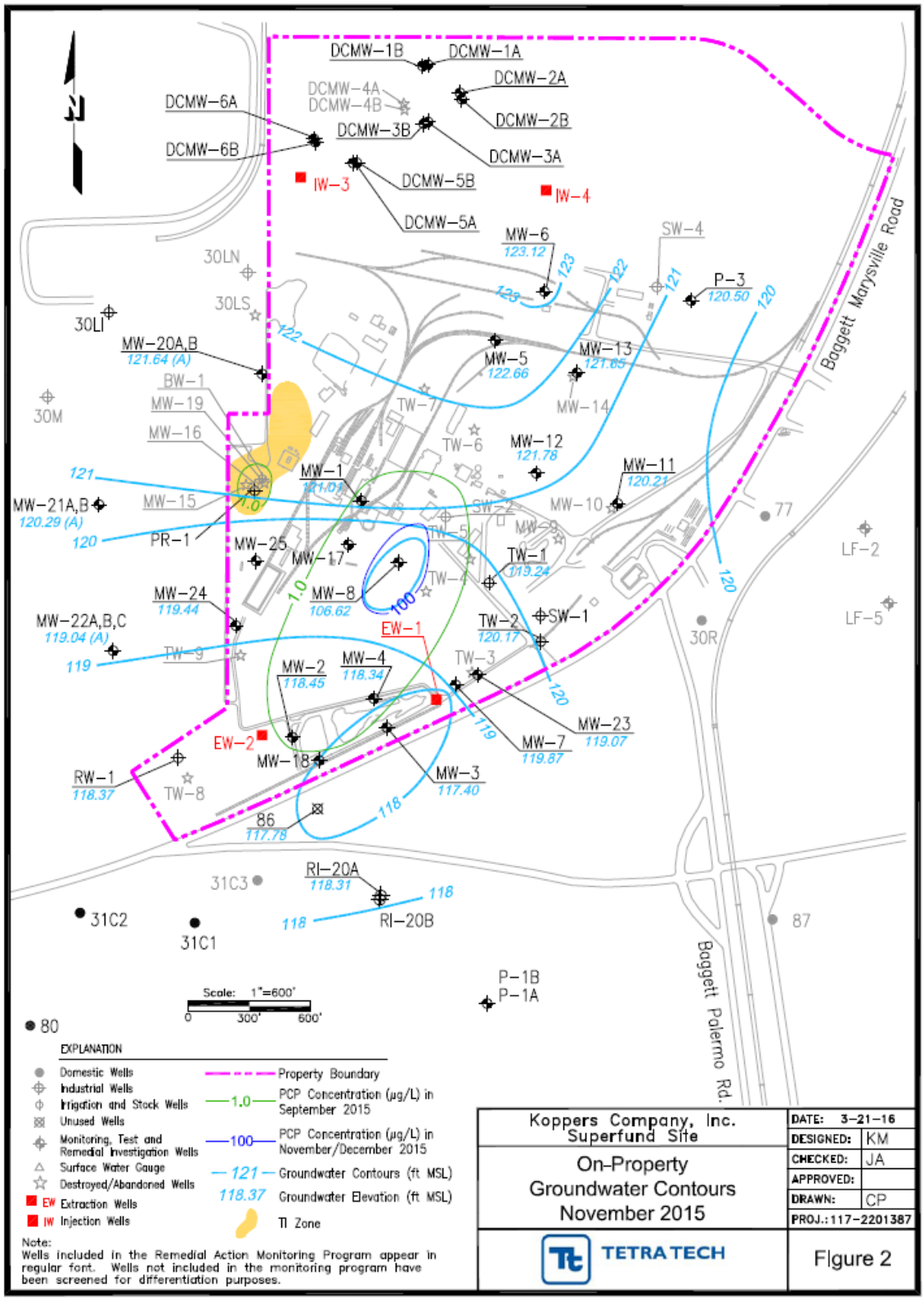


Figure B-5. Groundwater contours from November 2015.

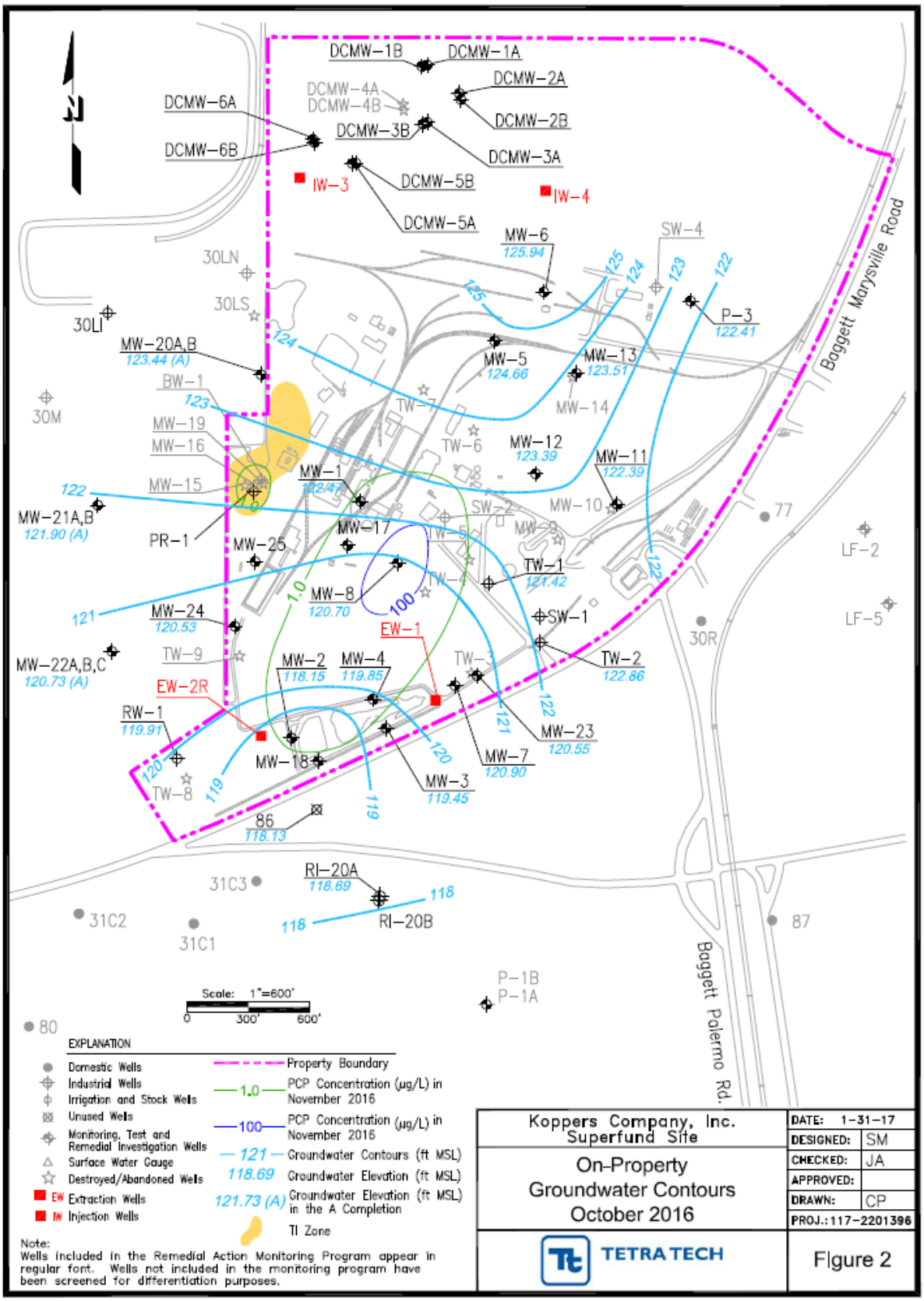


Figure B-6. Groundwater contours from October 2016.

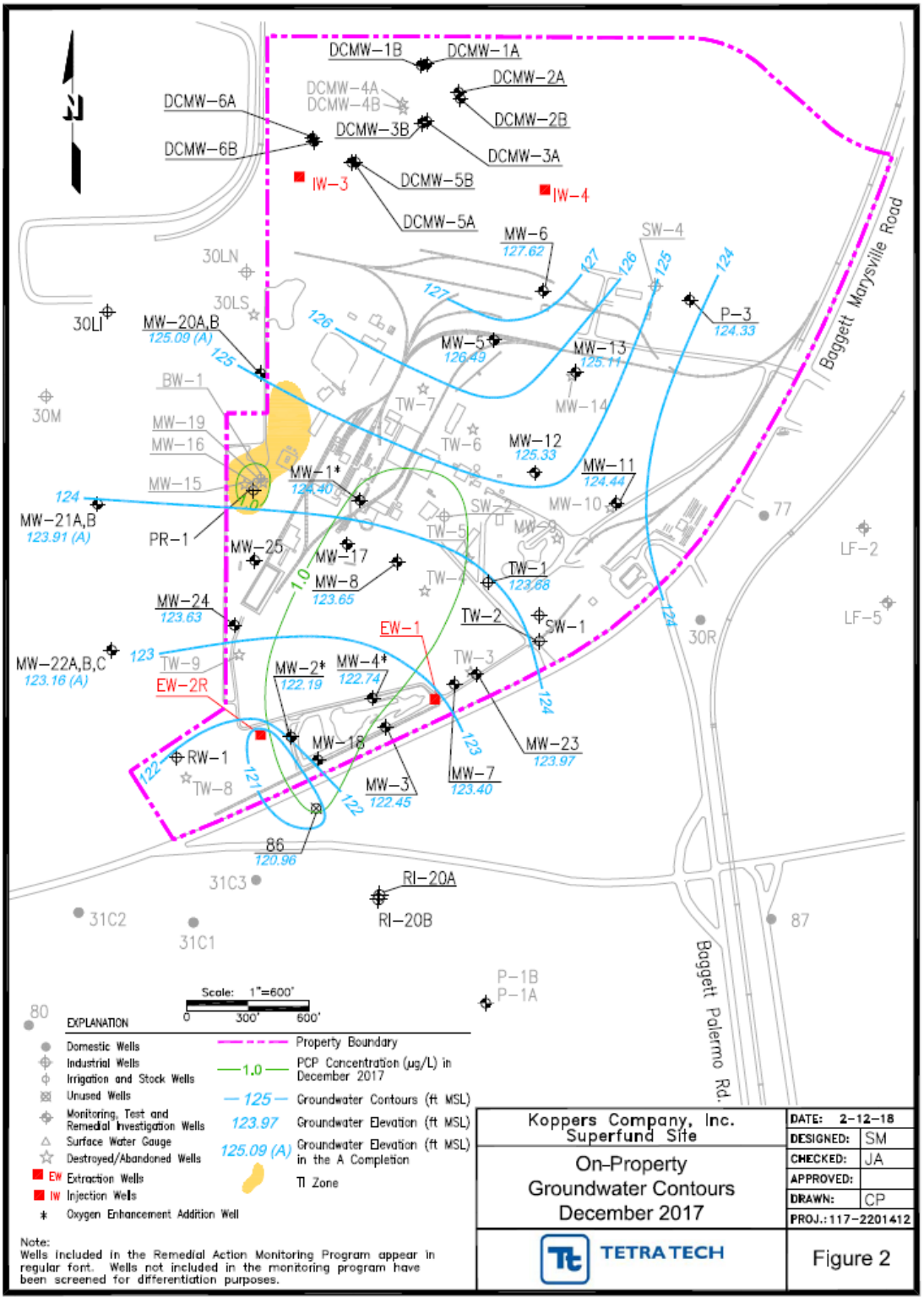


Figure B-7. Groundwater contours from December 2017.

Appendix C: ARAR Assessment

Section 121 (d)(2)(A) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) specifies that Superfund remedial actions must meet any federal standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate requirements (ARARs). Applicable requirements are those standards, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site. Relevant and appropriate requirements are those cleanup standards and other substantive environmental protection requirements promulgated under federal or state law that, while not directly "applicable" to a CERCLA site, address problems or situations sufficiently similar to those found at a site that their use is well suited to the particular cleanup.

Because remedial design and construction to implement previous Records of Decision (RODs) for the Koppers Company Inc. Superfund Site is complete, ARARs that address those activities are no longer pertinent and are not addressed in this review.

Table C-1 presents the chemical-specific ARARs identified in the decision documents. The ethylbenzene cleanup standard for groundwater is above the current MCL. However, ethylbenzene has not been detected in groundwater samples from the site during this five-year review period.

TableC-1. Summary of Groundwater Chemical-Specific ARARs

Contaminants of Concern	Cleanup Standards from Decision Documents (µg/l)*	Current State MCL (µg/L)±	Current Federal MCL (µg/L)	Is Cleanup Standard above the Current MCL?
Benzene	1	1	5	No
Ethylbenzene	680	300	700	Yes
Total Xylenes	1,750	1,750	10,000	No
Pentachlorophenol	1	1	1	No
Barium	1,000	1,000	2,000	No
Chromium	50	50	100	No
Copper	1,000	1,300	1,300	No

*Includes 1989 ROD, and 1996/1999 ROD Amendments Chemical-specific ARARs.
±As of January 10, 2018.

Table C-2. Action specific ARARs

Action	Media	Citation	Requirements	Origin	ARAR Changes during this Review Period
Property Containing Hazardous Waste	Title 22, CCR, Chapter 39, Section 67391.1	Title 22, CCR, Chapter 39, Section 67391.1	For properties that contain hazardous waste, citation requires all land use covenants to be signed by the DTSC and the landowner and be recorded in the county where the land is located	New regulation, Effective April 19, 2003.	Change without regulatory effect amending subsections (b) and (d) and Note filed 1-7-2013 pursuant to section 100, title 1, California Code of Regulations (Register 2013, No. 2).

No other Federal or State laws and regulations for ARARs have been promulgated or changed over the past 5 years in a manner that affects protectiveness. See Table C-2 above.

Appendix D: Human Health and the Environment Risk Assessment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region IX

75 Hawthorne Street (SFD-9-4)

San Francisco, CA 94105

MEMORANDUM June 2018

Subject: Koppers Company, Inc. Superfund Site, Oroville CA, fourth Five Year Review Protectiveness with Respect to Changes in Toxicity Values.

From: Daniel Stralka, Ph.D.

Regional Toxicologist

For: Five Year Review report,

Revisions to toxicity assessments for site-related contaminants may call into question the protectiveness of cleanup levels established in the Record of Decision (ROD) for a Superfund site. Thus, it is appropriate during a site's Five-Year Review (FYR) to re-evaluate protectiveness for contaminants where risk-based cleanup levels were chosen in the ROD.

Cleanup levels at Superfund sites are typically set to either Applicable or Relevant and Appropriate Requirements (ARARs), such as drinking water Maximum Contaminant Goals (MCLs). When an ARAR is not available for a contaminant, the National Contingency Plan (NCP) directs EPA to set a cleanup level that is "protective of human health and the environment", usually based on the risk assessment for the site.

While ARARs are "frozen" at the time of the ROD, risk-based cleanup levels should be re-evaluated considering any revisions to underlying toxicity assessments, to ensure continued protectiveness. If a Superfund site remedy is intended to meet a site-specific, risk-based cleanup level, the FYR guidance requires EPA to assess whether toxicity or other contaminant characteristics used to determine the original cleanup level have changed and whether it remains protective considering the change(s).

Table 1. Contaminants of Concern and Basis for Selecting Cleanup Level

Media	Chemical	Cleanup Standard from Decision Document	Source of Clean-up Standard
Soil	Arsenic	7.15 mg/kg	Background; 1996 ROD Amendment 1
	Chromium	181 mg/kg	Background; 1996 ROD Amendment 1
	Carcinogenic PAHs[a]	2.6 mg/kg	10^{-5} cancer risk for industrial worker; 1996 ROD Amendment 1
	Dioxins	1 µg/kg	1998 EPA guidance [b], 1996 ROD Amendment 1
	PCP	79 mg/kg	10^{-5} cancer risk for industrial worker; 1996 ROD Amendment 1
Groundwater	Benzene	1 µg/l	California MCL; 1989 ROD
	Ethylbenzene	680 µg/l	California MCL; 1989 ROD
	Total Xylenes	1,750 µg/l	California MCL; 1989 ROD
	Isopropyl Ether	2,800 µg/l	1989 ROD, risk calculation
	Carcinogenic PAHs[a]	7 ng/l	1989 ROD, risk calculation
	Dioxins	25 pg/l	Analytical detection limit; 1989 ROD
	Pentachlorophenol	1 µg/l	Federal MCL; 1999 ROD Amendment 2
	Arsenic	27 µg/l	Background; 1999 ROD Amendment 2
	Barium	1,000 µg/l	California MCL; 1999 ROD Amendment 2
	Boron	1,200 µg/l	1989 ROD, risk calculation
	Chromium	50 µg/l	California MCL; 1999 ROD Amendment 2
	Copper	1,000 µg/l	California Secondary MCL; 1999 ROD Amendment 2

a. Carcinogenic PAHs Include: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-c,d)pyrene

b. Formalized in EPA's 1998 Approach for Addressing Dioxin in Soil at CERCLA and Resource Conservation and Recovery Act (RCRA) Sites, industrial soil cleanup level.

mg/kg-milligrams per kilogram, µg/kg-micrograms per kilogram, µg/l- micrograms per liter, ng/l-nanograms per liter, pg/l- picograms per liter

Table 2. Comparison of RSL to ROD Cleanup Standards for soil and groundwater

Media	Contaminant of Concern	2018 RSL May 2018[a]	Cleanup Standard from Decision Document	Is the Cleanup Standard still protective?
Soil[b]	Carcinogenic PAHs	2.1 mg/kg ca	2.6 mg/kg	Yes
	Dioxins	0.022 ug/kg ca	1 µg/kg	No
	PCP	4.0 mg/kg ca	79 mg/kg	Yes
Groundwater	Isopropyl Ether	5900 µg/l nc	2,800 µg/l	Yes
	Carcinogenic PAHs	0.025 µg/l ca	0.007 µg/l	Yes
	Dioxins	0.12 pg/l ca	25 µg/l	No
	Boron	4000 µg/l nc	1,200 ppb	Yes

a. ca-cancer effect, nc-non-cancer effect
b. Soil based on industrial exposure
c. Groundwater based on residential use.

Protectiveness Determination: For these contaminants, a protectiveness determination using current toxicological and risk assessment information was made by comparing the risk-based cleanup goals specified in the ROD, ESD or 2 ROD Amendments to current risk-based screening levels. The Superfund RSLs (Regional Screening Levels) were used to make this comparison. RSLs incorporate current contaminant toxicity values into standard Superfund risk assessment scenarios to generate contaminant concentrations in impacted media that are protective of human health as defined in the NCP. RSLs are not de facto cleanup standards for a Superfund site; rather as risk-based screening levels they provide a reliable indication of whether additional actions may be needed to address potential human health exposures.

The RSLs for carcinogens are chemical-specific concentrations that correspond to an excess lifetime cancer risk (ELCR) of 1x10-6, which is the lower boundary of the Superfund protective range for cancer risks (ELCR = 10^{-6} to 10^{-4}) as defined in the NCP. RSLs for contaminants posing non-cancer health hazards are concentrations corresponding to a Hazard Quotient = 1.0 (HQ=1). HQ=1 RSLs represent "concentration levels to which the human population, including sensitive subgroups, may be exposed without adverse effect during a lifetime or part of a lifetime, incorporating an adequate margin of safety", as specified in the NCP.

To evaluate the protectiveness of the clean-up levels in soils were compared to industrial RSLs to account for the land-use restrictions already in place. For groundwater, clean-up levels were compared to MCLs, if available, or RSLs for drinking water.

The cleanup level of 1 µg/kg dioxins expressed as 2,3,7,8-tetrachloro dibenzo-p-dioxin equivalents (TEQ) is higher than the 2018 Remedial Screening Level for industrial sites of 0.022 µg/kg based on a 10^{-6} increased cancer risk. It is also higher than the non-cancer toxicity value results in soil screening levels of 0.6 µg/kg TEQ for industrial scenarios. After soil excavation had been completed, confirmation samples were collected and analyzed, along with previous samples where excavation was not required. A total of 182 samples were used to calculate the residual dioxin concentration using the upper 95% confidence level of the mean. The residual concentration of dioxin was calculated to be 0.6 µg/kg TEQ (TRC, 1999). This is equal to the non-hazard risk screening level, and is within EPA's cancer risk range of 10^{-4} to 10^{-6} excess cancer risk for industrial use. (0.022 µg/kg TEQ to 2.2 µg/kg TEQ). Therefore, the remedy is protective.

In groundwater, both the State and Federal MCL is 30 pg/l and the ground water cleanup goal is 25 pg/l based on the then analytical detection limit and is below the promulgated MCL and would be at the upper end of the risk range.

Appendix E: Press Notice

Newspaper : Chico Enterprise Record Advertiser : CALIF NEWSPAPER
Issue Date : 03/28/2018 Ad Number : 000612859501

BIDWELL PARK

City: Disc golfers upholding their agreement

By Laura Ursery
lursery@chicoer.com
@LauraUrsery on Twitter

CHICO » Despite continuing criticism from Friends of Bidwell Park, disc golf players are meeting their financial and environmental obligations in taking care of Peregrine Point Disc Golf Course, in the eyes of the city.

In a long staff report and then verbal report to the Bidwell Park and Playground Commission Monday, parks and natural resource manager Linda Herman explained her reasoning.

Outdoor Recreation Advocacy Inc. is the local nonprofit group of disc golf players that has been leasing the course from the city since 2010, and following mitigation and monitoring obligations.

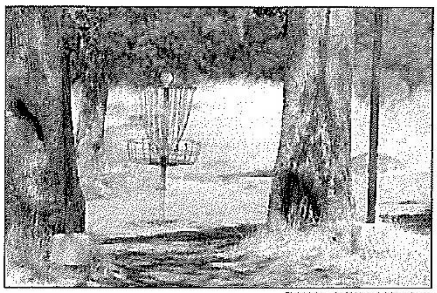
The course is east of Chico, off Highway 32, in upper Bidwell Park.

Friends of Bidwell Park objected when Herman suggested earlier this year that the city should take over the cost of environmental monitoring of the area from the disc golfers.

Herman pointed out the city's long-range plan for the area was not only for a disc golf course but a recreation area, with bathroom, trailhead, signs and information for different types of users.

Friends of Bidwell Park representative Woody Elliott said at that time that the agreement with the disc golfers stated they would cover costs of biological studies, adhere to mitigation plans, and work on the course. Herman has countered that the disc golfers are doing their part, but the city is having trouble on its side because of staff shortages. Additionally, it's more than disc golfers who are causing the impact on the area, including erosion and plant damage caused by bikers and cyclists, she said.

Environmentally sensitive wildlife and plants are found there, including peregrine falcons, Bidwell's knotweed and checkerbloom, as well as blue oaks. Environmentalists also have pointed out tremendous soil erosion that has occurred on the site, which is thin over lava cap.



BILL HUSA — ENTERPRISE-RECORD FILE

Narrow wooden poles set in front of trees to protect them from flying plastic discs at Peregrine Point Disc Golf Course have been deemed unsuccessful. The city suggests wrapping the trunks of trees likely to be hit with cushioned mesh.

"Not off the hook"

Herman said disc golfers have been working on the course.

"We're not letting them off the hook," she said, but said the club's resources are better spent on maintaining the course rather than spending on monitoring studies.

Of Peregrine Point, she said, "We're recognizing it is a recreation area and all are sharing the responsibilities."

Herman told the Park Commission that sensitive plants and wildlife are found throughout the area, not just at the course. Several of the park commissioners acknowledged the Parks Division's short staffing, which they felt had played a role in lack of oversight at the course.

Herman also produced a report showing what the disc golfers had contributed.

The club provided 50 percent of the course construction costs in cash, as agreed to; contributed nearly 2,000 hours to construct the course; and funded $24,036 in biological studies although it only owed about $14,481.

Herman said the club paid for biological studies every year from 2011-2016 when it only owed for every other year. After the course was finished, the club "provided additional cash and in-kind contributions in the amount of $65,611 (including volunteer hours) for a total overall contribution including the studies of $109,647," she wrote in the report. Herman said wood chips for soil protection have been delivered to the course, but the rocky terrain makes it difficult to distribute the chips to the various points in the course, which hugs the canyon edge in places.

Regarding blue oak protection, Herman said the wooden poles and later screens the club was told to put up didn't work, and now another option will be tried, wrapping the trunks in cushion-like mesh to protect them from flying discs. Herman said after research, she found trunks were taking more damage than branches.

Erosion

Responding to previous criticism over ongoing erosion at the course, with visitors not staying on designated paths, Herman said the city was getting ready to install a low railing that would better delineate the path.

Herman pointed out the city's long-range plan for the area was not only for a disc golf course but a recreation area, with bathroom, trailhead, signs and information for different types of users.

Commissioner Aaron Haar suggested that perhaps the course needed to be given a rest. Haar suggested the disc golfers, city and Friends of Bidwell Park should meet. He pointed out that promised signs, which would have kept visitors on paths, still weren't installed.

Herman said relocating several targets in the course could reach the same end, and was part of the original plan. Complaining about the erosion, Commissioner Elaina McReynolds, asked for an update of work done at the course by the fall.

Elliott did not attend Monday's meeting, but President John Merz said Friends of Bidwell Park would be happy to sit down with Outdoor Recreation Advocacy Inc. to work through it.

Phil Brock from the disc golf group attended the meeting but did not speak.

Contact reporter Laura Ursery at 896-7756.

BUSINESS

Chico's Aaron Brothers art, frame store to close

By Laura Ursery
lursery@chicoer.com
@LauraUrsery on Twitter

CHICO » The Aaron Brothers store in the shopping center near Best Buy will be closed by the summer.

Michael's Stores announced it would close all 94 Aaron Brothers throughroads center on Martin Luther King Jr. Boulevard.

Contact reporter Laura Ursery at 896-7756.

EDUCATION

Chico State, Butte College choose Book in Common

Staff Reports

CHICO » Chico State University and Butte College have chosen the Book in Common for the next academic year.

"All They Will Call You" by Tim Z. Hernandez tells the true story of a January 1948 plane crash in California's Central Valley that killed 32 passengers, including 28 Mexican farmworkers who were being deported.

"Through years of painstaking investigative research and masterful storytelling," the university said in a press release, "Hernandez captures a stirring narrative blending historical records, testimony and eyewitness accounts. The result is boundary-pushing narrative that reconstructs the incident while creating intimate portraits of those who perished in the fatal plane crash."

The title of the book is a reference to a poem that became a song by American folk singer Woody Guthrie. He was outraged that news reports omitted the names of the Mexican passengers, only referring to them as deportees, and they were buried in an unmarked mass grave in the Central Valley. Hernandez tells the stories of the, until now, anonymous lives.

The Book in Common is chosen each year by a committee. It is designed to foster discussion in the community. Chico State, Butte College, Butte County and the Chico city government will sponsor panel discussions, lectures and other public events centered around the book.

"We are committed to the Book in Common and to using a shared reading experience not only to educate ourselves on important subjects, but also to bring us together and make us more empathetic human beings," said Chico State President Gayle Hutchinson. "Tim Hernandez's book serves those purposes beautifully."

Past community reads include "The Distance Between Us," by Reyna Grande, "Unquenchable," by Robert Glennon, and "My Life on the Road," authored by Gloria Steinem. The 2017-18 Book in Common selection, Matt Richtel's nonfiction work "A Deadly Wandering," focused on a car wreck caused by inattention from using a cellphone while driving. Richtel visited Chico in October for discussions at Chico State and Butte College.

A community kickoff event for "All They Will Call You" will be scheduled for the early part of the fall semester.

For more information on the Book in Common, visit www.csuchico.edu/bic.

EPA CONDUCTS FOURTH REVIEW OF CLEANUP ACTIONS AT WESTERN PACIFIC RAILROAD COMPANY SUPERFUND SITE

The U.S. Environmental Protection Agency (EPA) is conducting a fourth five-year review of cleanup actions completed at the Western Pacific Railroad Company (WPRR) Superfund Site near Oroville, California. The review will cover the groundwater and soil cleanup remedies at the site.

According to Superfund law, if a cleanup takes more than five years to complete, or hazardous wastes remain on the site, the cleanup will be reviewed every five years. The last five-year review, conducted in 2013, reviewed the completed groundwater and soil remedies and found that the remedies were protective of human health and the environment.

The Fourth Five-Year Review report will be final in September 2018 and will be available to the public both online and at the local information repository.

EPA invites the community to learn more about this review and welcomes your input. Information is available at EPA's website: www.epa.gov/superfund/westernpacific.

The information repository that contains the site's Administrative Records, reports, documents, fact sheets and other material, is located at the Butte County Public Library at 1820 Mitchell Avenue in Oroville, California. To obtain additional information you can contact Holly Hadlock, Superfund Remedial Project Manager, at (415) 972-3171 or at hadlock.holly@epa.gov.

CNS-3114969#

EPA CONDUCTS FIFTH REVIEW OF CLEANUP ACTIONS AT KOPPERS COMPANY, INC. SUPERFUND SITE

The U.S. Environmental Protection Agency (EPA) is conducting a fifth Five-Year Review (FYR) of cleanup actions completed at the Koppers Company, Inc. Superfund site near Oroville, CA. The review will cover the groundwater and soil cleanup remedies at the site.

According to Superfund law, if a cleanup takes more than five years to complete, or hazardous waste remains on the site, the cleanup will be reviewed every five years. The last FYR, done in 2013, reviewed the groundwater and soil remedies. The FYR found the remedies protected human health and the environment.

The fifth FYR will be completed in September 2018 and made available for the public online and at the information repositories listed below.

EPA invites the community to learn more about this FYR and welcomes your input.

Information is available on EPA's web site: https://www.epa.gov/superfund/koppersoroville.

There are two information repositories that hold the site's Administrative Records, project reports, fact sheets and other material. One is found at the Butte County Public Library at 1820 Mitchell Avenue, Oroville, CA 95966, and the second is at the Meriam Library at 400 West First Street, Chico, CA. You may also contact Daewon Rojas-Mickelson, Remedial Project Manager, at (415) 947-4191 or rojas-mickelson.daewon@epa.gov for more information.

CNS-3113186#

Appendix F: Interview Forms

Five-Year Review Interview Record				
Site: Koppers			**EPA ID No:**	CAD009112087
Interview Type: Location of Visit: Teleconference Date: 15 February 2018 Time: 10:00				

Interviewers		
Name	**Title**	**Organization**
Jeffrey Weiss	Hydrogeologist	USACE

Interviewees				
Name	**Organization**	**Title**	**Telephone**	**Email**
William Bergmann	RWQCB			

Summary of Conversation

1) What is your overall impression of the project?

I do not know of any negative issues with the project. Currently I review monthly data reports from the project and do not have a significant role in the project.

2) Is the remedy functioning as expected? How well is the remedy performing?

Not applicable based on my current role with the project.

3) What does the monitoring data show? Are there any trends that show contaminant levels are decreasing?

No, nothing significant.

4) Is there a continuous O&M presence? If so, please describe staff and activities. If there is not a continuous on-site presence, describe staff and frequency of site inspections and activities.

Not applicable, I have not been out in a few years.

5) Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines in the last five years? If so, do they affect protectiveness of the remedy? Please describe changes and impacts.

Not applicable, I am not involved in the monthly work.

6) Have there been unexpected O&M difficulties or costs at the site in the last five years? If so, please give details.

No

Five-Year Review Interview Record			
Site: Koppers		**EPA ID No:**	CAD009112087

Interview Type:
Location of Visit: Teleconference
Date: 15 February 2018
Time: 11:00

Interviewers

Name	Title	Organization
Jeffrey Weiss	Hydrogeologist	USACE

Interviewees

Name	Organization	Title	Telephone	Email
Jennifer Abrahams	Tetra Tech			

Summary of Conversation

Ms. Abrahams Does not do a lot of on-site work she is the project manager. Field Technical Services does OM, interacts with Field Technical Services, she has a good working relationship.

1) **What is your overall impression of the project?**

Remediation is progressing residual plume is decreasing, boron, and PCP. More in maintenance not as much active.

2) **Is the remedy functioning as expected? How well is the remedy performing?**

Yes, and performing well.

3) **What does the monitoring data show? Are there any trends that show contaminant levels are decreasing?**

Does not do a lot of monitoring. Wrote in 2012 and approved in 2013 resulted in 2013 optimized sampling schedule.

4) **Is there a continuous O&M presence? If so, please describe staff and activities. If there is not a continuous on-site presence, describe staff and frequency of site inspections and activities.**

Field Technical Services are the ones who conduct O&M, sampling, MW-8 has the boron concentrations. Weekly checks at treatment plant.

5) **Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines in the last five years? If so, do they affect protectiveness of the remedy? Please describe changes and impacts.**

Optimization changed the sampling. 2015 extraction rate was tailing off and tried to rehab EW2, significant portions of screen were compromised. Screen was missing. Drilled new extraction well. New well brought production rates back to reasonable levels. Maintains capture and meets its goals.

6) **Have there been unexpected O&M difficulties or costs at the site in the last five years? If so, please give details.**

Replacing well EW-2. After optimization, closed out. Contacted owners and let them know they could have the wells abandoned, abandoned 15 wells. Off-Property and a few TI wells. Periodic vandalism does occur.

7) **Have there been opportunities to optimize O&M or sampling efforts? Please describe changes and resultant or desired cost savings or improved efficiency.**

Optimization approved in 2013 (this resulted in discontinuation of monitoring Off-Property and well abandonment).

8) **Are you aware of any changes in Federal/State/County/Local laws and regulations that may impact the protectiveness of the remedy?**

Federal status with respect to dioxins looked at dioxins and current remedy is protective.

9) **Do you have any comments, suggestions, or recommendations regarding the project?**

No, there are no big changes to how we implement the remedy. Ideally turn off GET system.

Appendix G: Site Inspection Checklist

I. SITE INFORMATION	
Site name: Koppers Company, Inc. Superfund Site	**Date of inspection:** March 28, 2018
Location: Oroville (Butte County) California	**EPA ID:** CAD009112087
Agency, office, or company leading the five-year review: USACE Seattle District	**Weather/temperature:** Sunny in the 70s

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☒ Groundwater extraction and treatment
- ☐ Surface water collection and treatment
- ☐ Other: *e.g. Groundwater monitoring*
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☒ Inspection team roster attached ☐ Site map attached
☒ Trip report attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Marvin Raasch (Name) Site Supervisor (Title) March 28, 2018 (Date)
   Interviewed ☒ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached
   _____
   _____

2. **O&M staff** Casey Wilmanber (Name) O&M Technician (Title) March 28, 2018 (Date)
   Interviewed ☒ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached
   _____
   _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency: DTSC

Contact: Carolyn Yee	_____	March 28, 2018	(916)255-3671
Name	Title	Date	Phone no.

Problems; suggestions; ☐ Report attached: Carolyn recently took over the project so a formal interview was not completed. She was present for the site walk

Agency: Central Valley RWQCB

Contact: Bill Bergman	_____	February 15, 2018	(530) 224-4852
Name	Title	Date	Phone no.

Problems; suggestions; ☒ Report attached _____

_____

Agency: _____

Contact: _____	_____	_____	_____
Name	Title	Date	Phone no.

Problems; suggestions; ☐ Report attached _____

_____

Agency: _____

Contact: _____	_____	_____	_____
Name	Title	Date	Phone no.

Problems; suggestions; ☐ Report attached _____

_____

4. **Other interviews** (optional) ☒ Report attached.

Jennifer Abrahams with Tetra Tech

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☒ O&M manual	☒ Readily available	☒ Up to date	☐ N/A
☒ As-built drawings	☒ Readily available	☒ Up to date	☐ N/A
☒ Maintenance logs	☒ Readily available	☒ Up to date	☐ N/A

Remarks_____

_____

2. **Site-Specific Health and Safety Plan** ☒ Readily available ☒ Up to date ☐ N/A

☒ Contingency plan/emergency response plan ☒ Readily available ☒ Up to date ☐ N/A

Remarks_____

_____

3.	**O&M and OSHA Training Records**	☒ Readily available	☒ Up to date	☐ N/A
	Remarks__Operators and O&M personnel have 40 hour HAZWOPER training.			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
	☐ Other permits_____	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_Facility operations are in substantive compliance with local requirements.			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_____			
6.	**Settlement Monument Records**	☒ Readily available	☒ Up to date	☐ N/A
	Remarks: Settlement monitoring is completed on the landfill and occurs every 5 years.			
7.	**Groundwater Monitoring Records**	☒ Readily available	☒ Up to date	☐ N/A
	Remarks: Groundwater monitoring reports are completed annually.			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: Leachate levels are checked monthly and pumped to treatment system as needed. The volume of leachate is not recorded since it is treated with other water from the site.			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	☒ N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A
	Remarks_The effluent water is tested prior to being injected.			
10.	**Daily Access/Security Logs**	☒ Readily available	☒ Up to date	☐ N/A
	Remarks: A log of all visitors to the site is maintained.			

IV. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☒ Gates secured ☐ N/A

Remarks: Vandalism has been a problem at the site. Damages are reported to the local police and repaired. Security cameras have also been installed at the site.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks Do not enter signs are posted and security cameras are located at the treatment system and extraction wells.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Drive by

Frequency: Annually

_____

Responsible party/agency _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No ☐ N/A

Reports are verified by the lead agency ☐ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☐ N/A

Violations have been reported ☐ Yes ☐ No ☐ N/A

Other problems or suggestions: ☐ Report attached

_____

_____

_____

_____

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks:

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☐ No vandalism evident

Remarks: The site has continued to have problems with vandalism including theft of dedicated sampling pumps, theft of wiring at extraction wells, damage to treatment system and dumping of garbage. Local law enforcement is notified when vandalism occurs and security cameras have been installed.

2. **Land use changes on site** ☒ N/A

Remarks:

3. **Land use changes off site** ☒ N/A
Remarks:

V. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A
Remarks: Roads are rutted in some locations however they are still functional.

B. Other Site Conditions

Remarks: Fire breaks are maintained around the treatment facility, extraction wells, injection wells, landfill, and product recovery well.

VI. LANDFILL COVERS ☒ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident
Areal extent_____ Depth_____
Remarks: There are very minor ruts likely caused by mowing and small dirt mounds from animal burrow. There was no evidence of the cap being compromised._____

2. **Cracks** ☐ Location shown on site map ☒ Cracking not evident
Lengths_____ Widths_____ Depths_____
Remarks: _____
_____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
Areal extent_____ Depth_____
Remarks: There is surface drainage including ditches and piping to prevent surface water from collecting on the landfill. There was minor surface water flow on the access road on the southern side of the landfill; however, it was not causing any erosion.

4. **Holes** ☐ Location shown on site map ☒ Holes not evident
Areal extent_____ Depth_____
Remarks_____
_____

5. **Vegetative Cover** ☒ Grass ☒ Cover properly established
☐ No signs of stress ☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks: The landfill was recently mowed and is in good condition.

6. **Alternative Cover (armored rock, concrete, etc.)** ☒ N/A
Remarks_____
_____

7. **Bulges** ☐ Location shown on site map ☒ Bulges not evident
Areal extent_____ Height_____
Remarks_____
_____

8. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident

☐ Wet areas ☐ Location shown on site map Areal extent_____

☐ Ponding ☐ Location shown on site map Areal extent_____

☐ Seeps ☐ Location shown on site map Areal extent_____

☐ Soft subgrade ☐ Location shown on site map Areal extent_____

Remarks: Minor amounts of surface water seepage, however it was not causing erosion and drainage ditches and piping was conveying the seepage and surface water away from the landfill.

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☒ No evidence of slope instability

Areal extent_____

Remarks:

B. Benches ☐ Applicable ☒ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☒ N/A or okay

Remarks_____

2. **Bench Breached** ☐ Location shown on site map ☒ N/A or okay

Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☒ N/A or okay

Remarks_____

C. Letdown Channels ☐ Applicable ☒ N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☒ No evidence of settlement

Areal extent_____ Depth_____

Remarks_____

2. **Material Degradation** ☐ Location shown on site map ☒ No evidence of degradation

Material type_____ Areal extent_____

Remarks_____

3. **Erosion** ☐ Location shown on site map ☒ No evidence of erosion

Areal extent_____ Depth_____

Remarks_____

4. **Undercutting** ☐ Location shown on site map ☒ No evidence of undercutting

Areal extent_____ Depth_____

Remarks_____

5. **Obstructions** Type_____ ☒ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____
_____

6. **Excessive Vegetative Growth** Type_____
☒ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____
_____

D. Cover Penetrations ☒ Applicable ☐ N/A

1. **Gas Vents** ☐ N/A ☐ Active ☒ Passive ☐ Properly secured/locked ☐ Functioning
☐ Routinely sampled ☒ Good condition ☐ Evidence of leakage at penetration
☐ Needs Maintenance
Remarks_____
_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☒ N/A
Remarks_____
_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☒ N/A
Remarks_____
_____

4. **Leachate Extraction Wells**
☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_The leachate levels are checked monthly and pumped to treatment system as needed.

5. **Settlement Monuments** ☒ Located ☒ Routinely surveyed ☐ N/A
Remarks: Monitoring occurs every 5 years. _

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

1. **Gas Treatment Facilities**
☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
☐ Good condition ☐ Needs Maintenance
Remarks_____
_____

2. **Gas Collection Wells, Manifolds and Piping**
☐ Good condition ☐ Needs Maintenance
Remarks_____
_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____

F. Cover Drainage Layer ☐ Applicable ☒ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☒ N/A
Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☒ N/A
Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. **Siltation** ☐ N/A ☐ Siltation not evident
Areal extent_____ Depth_____
Remarks_____

2. **Erosion** Areal extent_____ Depth_____ ☒ Erosion not evident
Remarks_____

3. **Outlet Works** ☐ Functioning ☒ N/A
Remarks_____

4. **Dam** ☐ Functioning ☒ N/A
Remarks_____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
Horizontal displacement_____ Vertical displacement_____
Rotational displacement_____
Remarks_____

2. **Degradation** ☐ Location shown on site map ☒ Degradation not evident
Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☒ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☒ Siltation not evident
Areal extent_____ Depth_____
Remarks Surface water drainage is conveyed away from the landfill in ditches around the perimeter of the landfill.

2. **Vegetative Growth** ☐ Location shown on site map ☒ N/A
☐ Vegetation does not impede flow
Areal extent_____ Type_____
Remarks_____

3.	**Erosion** ☐ Location shown on site map ☒ Erosion not evident Areal extent_____ Depth_____ Remarks_____
4.	**Discharge Structure** ☐ Functioning ☒ N/A Remarks_____
	VII. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☐ N/A
	A. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A
1.	**Pumps, Wellhead Plumbing, and Electrical** ☒ Good condition ☒ All required wells properly operating G Needs Maintenance G N/A Remarks: A new extraction well 2 was installed in 2016 due to issues with the screen. Well MW-8, which is used as an extraction well, has a decreased extraction rate.
2.	**Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☒ Good condition ☐ Needs Maintenance Remarks_____
3.	**Spare Parts and Equipment** ☒ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks_____
	B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A
1.	**Collection Structures, Pumps, and Electrical** ☐ Good condition ☐ Needs Maintenance Remarks_____
2.	**Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition ☐ Needs Maintenance Remarks_____
3.	**Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks_____

C. Treatment System ☒ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)

☐ Metals removal ☐ Oil/water separation ☐ Bioremediation

☒ Air stripping ☒ Carbon adsorbers

☒ Filters There are mixed media filters with sand, gravel and anthracite coal between the air strippers and GAC vessels. The mixed media filters occasionally clogged so bag filters were added that are plumed in parallel with the mixed media filters to ensure adequate flow to the GAC vessels. The GAC filters have two trains, each with a lead and lag vessel. Only train B is operating and it is adequate for operating the system.

☐ Additive (*e.g.*, chelation agent, flocculent)_____

☐ Others_____

☐ Good condition ☐ Needs Maintenance

☒ Sampling ports properly marked and functional

☒ Sampling/maintenance log displayed and up to date

☒ Equipment properly identified

☒ Quantity of groundwater treated annually_____

☐ Quantity of surface water treated annually_____

Remarks: The settling tank that backwash water and leachate water is stored in is occasionally drained into a cement lined evaporation pond. The sediment in the settling pond is occasionally removed and disposed of at appropriate disposal facilities. _

2. **Electrical Enclosures and Panels** (properly rated and functional)

☐N/A ☒ Good condition ☐ Needs Maintenance

Remarks_____

_____

3. **Tanks, Vaults, Storage Vessels**

☐N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance

Remarks_____

_____

4. **Discharge Structure and Appurtenances**

☐ N/A ☒ Good condition ☐ Needs Maintenance

Remarks_____

_____

5. **Treatment Building(s)**

☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair

☐ Chemicals and equipment properly stored

Remarks_____

_____

6. **Monitoring Wells** (groundwater extraction and treatmentment remedy)

☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☐Good condition

☐ All required wells located ☐ Needs Maintenance ☐ N/A

Remarks_____

_____

D. Monitoring Data

1. Monitoring Data

☒ Is routinely submitted on time ☒ Is of acceptable quality

2. Monitoring data suggests:

☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs Maintenance ☒ N/A

Remarks_____

_____

VIII. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

IX. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The non-detect concentrations of PCP in extraction wells EW-1 and EW-2 indicate the plume is shrinking and the remedy of groundwater extraction and treatment is functioning as intended. The landfill cover is intact and there were no signs of damage.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The O&M is adequate and the groundwater extraction and treatment and landfill continue to function as designed. The vandalism as the site continues to be a cost issue however; it does not affect the remedy.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

There are no indicators of potential remedy problems. The groundwater groundwater extraction and treatment system continues to operate as designed and the landfill cover is intact.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

MW-8 which is being used as an extraction well has a declining pumping rate. The extraction rate is adequate for removing contamination however; the removal of boron and PCP could be increased by addressing the decreasing pumping rate. The requirement for removing product from the product recovery wells should be evaluated.

Appendix H: Trip Report

Trip Report
Koppers Superfund Site, Oroville, CA

1. INTRODUCTION

a. Date of Visit: March 28, 2018

b. Location: Oroville, CA

c. Purpose: A site visit was conducted to visually inspect and document the conditions of the remedy, the site, and the surrounding area for inclusion into the Five-Year Review Report.

d. Participants:

Jennifer Abrahams, P.G.	Tetra Tech, Inc.	(916)704-4711
Bill Bergmann, CHG	Central Valley RWQCB	(530)224-4852
Michael W. Bollinger	Beazer East, Inc.	(412) 327-3362
Marvin Raasch	Field Technical Services	
Casey Wilmunber	Field Technical Services	
Daewon Rojas-Mickelson, PE	US EPA Region 9	(415) 947-4191
Carolyn Yee	DTSC	(916) 255-3671
Jim Rohrer	DTSC	
Jeffrey Weiss	USACE	(206)764-3312

2. SUMMARY

A site visit to the Koppers Superfund site was conducted on March 28, 2018. The participants toured the groundwater treatment system, extraction wells, injection wells, product recovery well and landfill. The groundwater extraction and treatment system has been operating since 1994 and has treated approximately 3.6 billion gallons of water as of December 2017. The groundwater extraction and treatment system currently consists of three extraction wells with a combined pumping rate of approximately 300 gallons per minute which is treated at the on-site treatment plant and re-injected in two up gradient wells. The product recovery well extracts approximately 200 to 250 gallons of combined product and emulsion per year. The landfill is capped and monitoring includes annual sampling from 10 monitoring wells surrounding the landfill, measuring and removing leachate and settlement monitoring completed every five years.

3. DISCUSSION

Site overview

Marvin Raasch with Field Technical Services (FTS) completed a site safety briefing and conducted the site inspection of the treatment plant, extraction wells, injection wells, product recovery wells and landfill.

The treatment system consists of one air stripping tower, multimedia and bag filter and two granular activated carbon (GAC) filters in series. Water is pumped from the extraction wells into a settling tank and then pumped through the treatment system. Sediment from the settling tank is occasionally drained into a cement lined evaporation pond and after evaporation; the sediment is disposed of at an appropriate facility. The treatment system operates continuously at 200 to 300 gallons per minute (gpm) and the extraction and injection wells cycle on and off to maintain the necessary flow through the treatment system. The multimedia filter was limiting the pumping rate through the treatment system so a bag filter was installed to operate in parallel with the multimedia filter to maintain flow required for the rest of the treatment system. Two GAC trains each with a lead and lag filter are installed at the site however only one of the trains is used. Leachate from the disposal cells is pumped into a storage tank at the treatment system and then treated using the treatment system. FTS performs maintenance and operations at the site approximately six days a week.

Extraction wells

Three extraction wells EW-1, EW-2 and MW-8 pump water to the treatment system. The three wells are cycled on and off simultaneously to maintain the necessary flow through the treatment system. When operating the pumping rates at the wells are approximately 100 gpm at EW-1, 200 gpm at EW-2 and 30 gpm at MW-8. The pumping rate at MW-8 has been declining and the reason for the declining rate is being evaluated. Extraction well EW-2 was replaced in 2016 due to a failure with the screen.

Injection Wells

The treated water is pumped at equal rates to the injection wells IW-3 and IW-4. Two equalization tanks at the treatment system store treated water and floats in the tanks control injection. Occasional vandalism at the injection wells has caused them to be off line.

Product Recovery Well

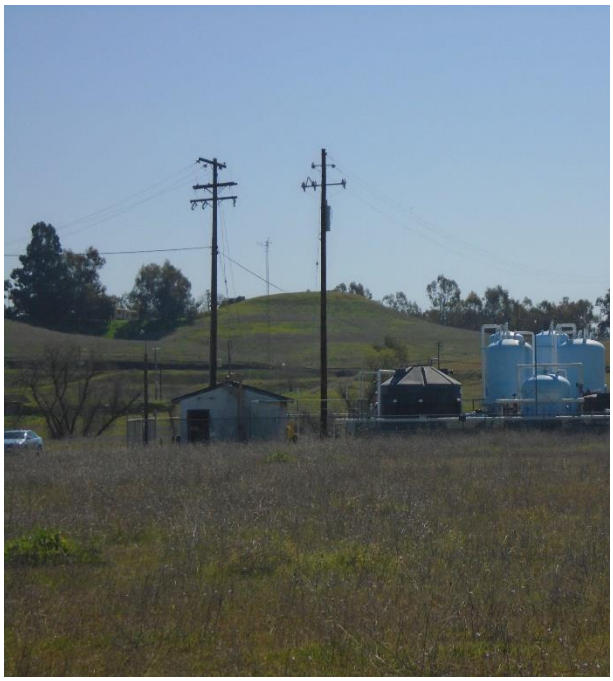
The level of product is measured in the product recovery well each week and pumped out when the 5-ft. sump is full of product. The product and emulsion is stored the treatment system and then disposed offsite.

Landfill

The landfill cap is intact with no signs of failure. Vandalism continues to be an issue at the site. Security cameras have been installed to reduce the vandalism. Extraction well EW-2 was replaced in 2016 due to issues with the screen.

Jeffrey Weiss
Geologist
CENWS-ENT-G

Appendix I: Photographs from Site Inspection Visit



On-Property groundwater and extraction system (GET) plant.

Office space within On-Property GET plant with work related postings/regulations.

Main control panel for the On-Property GET.

Storage tanks for On-Property GET plant.

Granular Activated Carbon holding tanks at On-Property GETs plant.

Stripping tower of the On-Property GETs plant.

Settling basin at On-Property GETs plant.

On-Property GETs plant surge tank and containment basin.

On-Property GETs process tanks.

On-Property GETs sampling ports.

On-Property GETs bag filter units.

Extraction well #1.

Extraction well #2.

Koppers Company Inc. landfill.

Extraction well #3.

Landfill leachate monitoring wells.

Stormwater basin on Site.

IPaC **U.S. Fish & Wildlife Service**

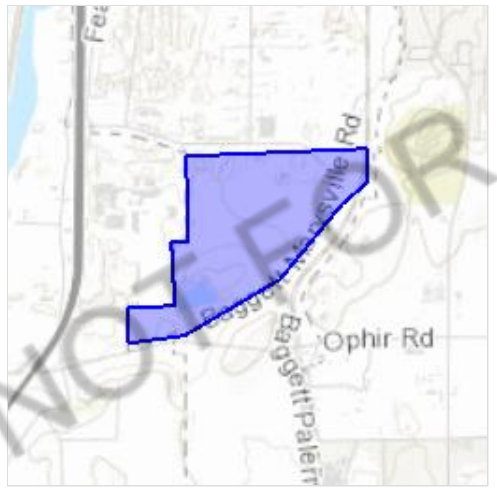
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Butte County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS

Yellow-billed Cuckoo Coccyzus americanus — Threatened
There is **proposed** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/3911

Reptiles

NAME	STATUS
Giant Garter Snake Thamnophis gigas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Vernal Pool Tadpole Shrimp Lepidurus packardi There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Slender Orcutt Grass Orcuttia tenuis There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1063	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ

below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
California Thrasher *Toxostoma redivivum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
Common Yellowthroat *Geothlypis trichas sinuosa* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31

Costa's Hummingbird Calypte costae — Breeds Jan 15 to Jun 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9470

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lewis's Woodpecker Melanerpes lewis — Breeds Apr 20 to Sep 30
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Rufous Hummingbird selasphorus rufus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Song Sparrow Melospiza melodia — Breeds Feb 20 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee Pipilo maculatus clementae — Breeds Apr 15 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

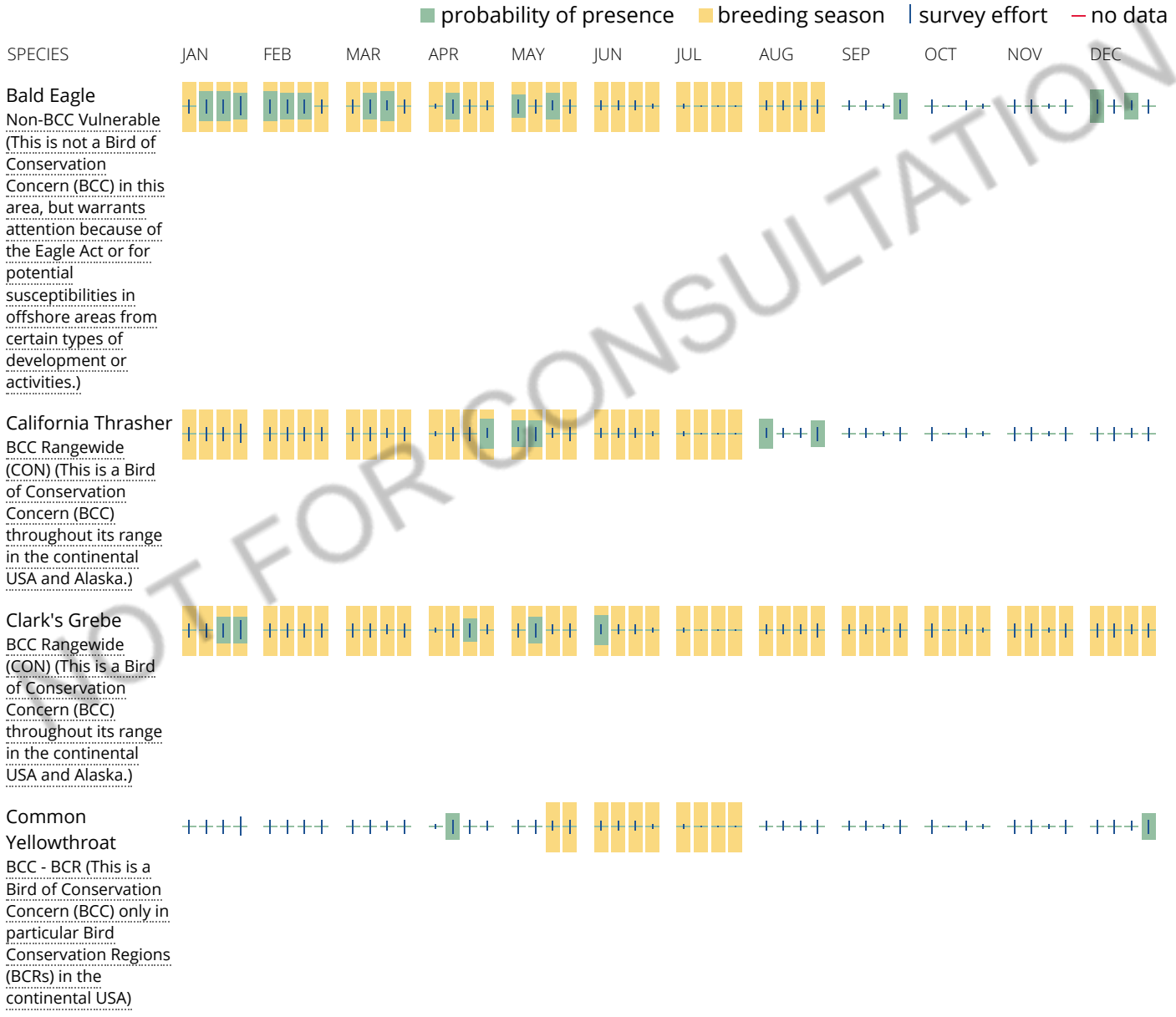
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

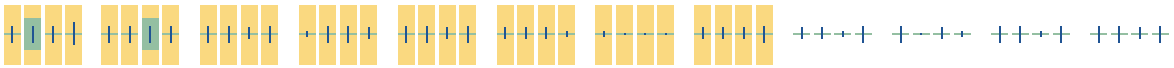
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

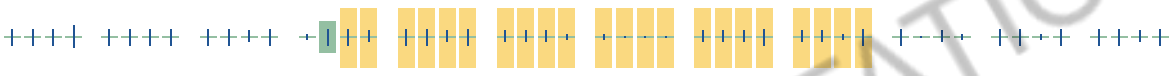


Costa's Hummingbird
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

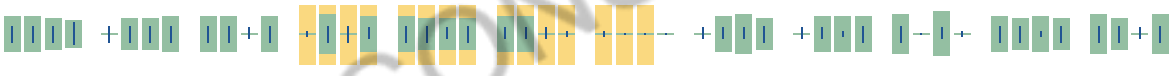
Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



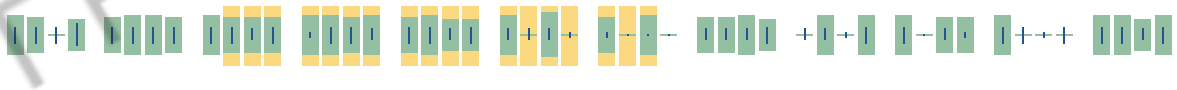
Lewis's Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

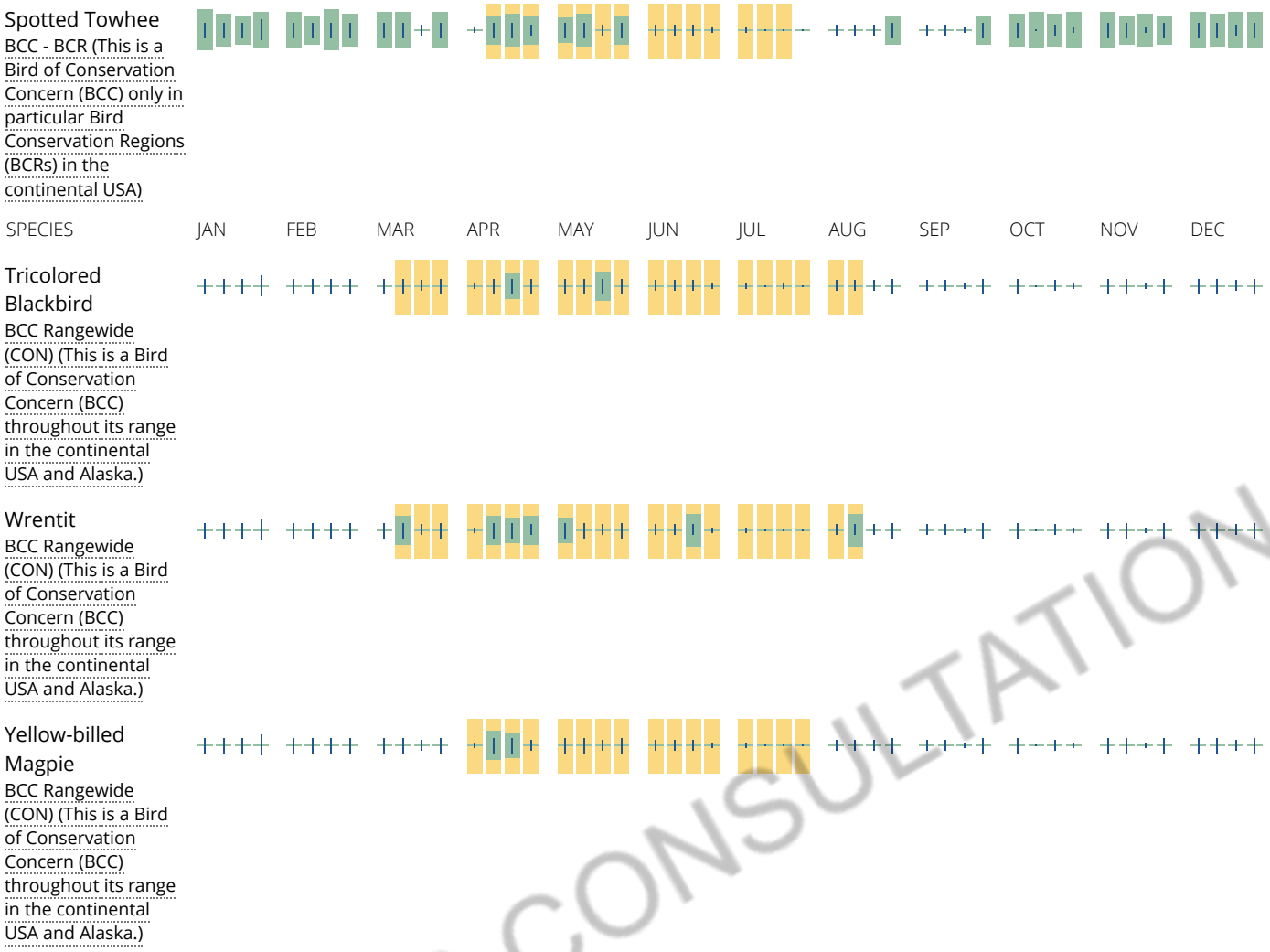


Oak Titmouse
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

PSS/EM1C

FRESHWATER POND

PUBK

RIVERINE

R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Butte County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS

Yellow-billed Cuckoo Coccyzus americanus — Threatened
There is **proposed** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/3911

Reptiles

NAME	STATUS
Giant Garter Snake Thamnophis gigas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Vernal Pool Tadpole Shrimp Lepidurus packardi There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Slender Orcutt Grass Orcuttia tenuis There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1063	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ

below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
California Thrasher *Toxostoma redivivum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
Common Yellowthroat *Geothlypis trichas sinuosa* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31

Costa's Hummingbird Calypte costae — Breeds Jan 15 to Jun 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9470

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lewis's Woodpecker Melanerpes lewis — Breeds Apr 20 to Sep 30
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Rufous Hummingbird selasphorus rufus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Song Sparrow Melospiza melodia — Breeds Feb 20 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee Pipilo maculatus clementae — Breeds Apr 15 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

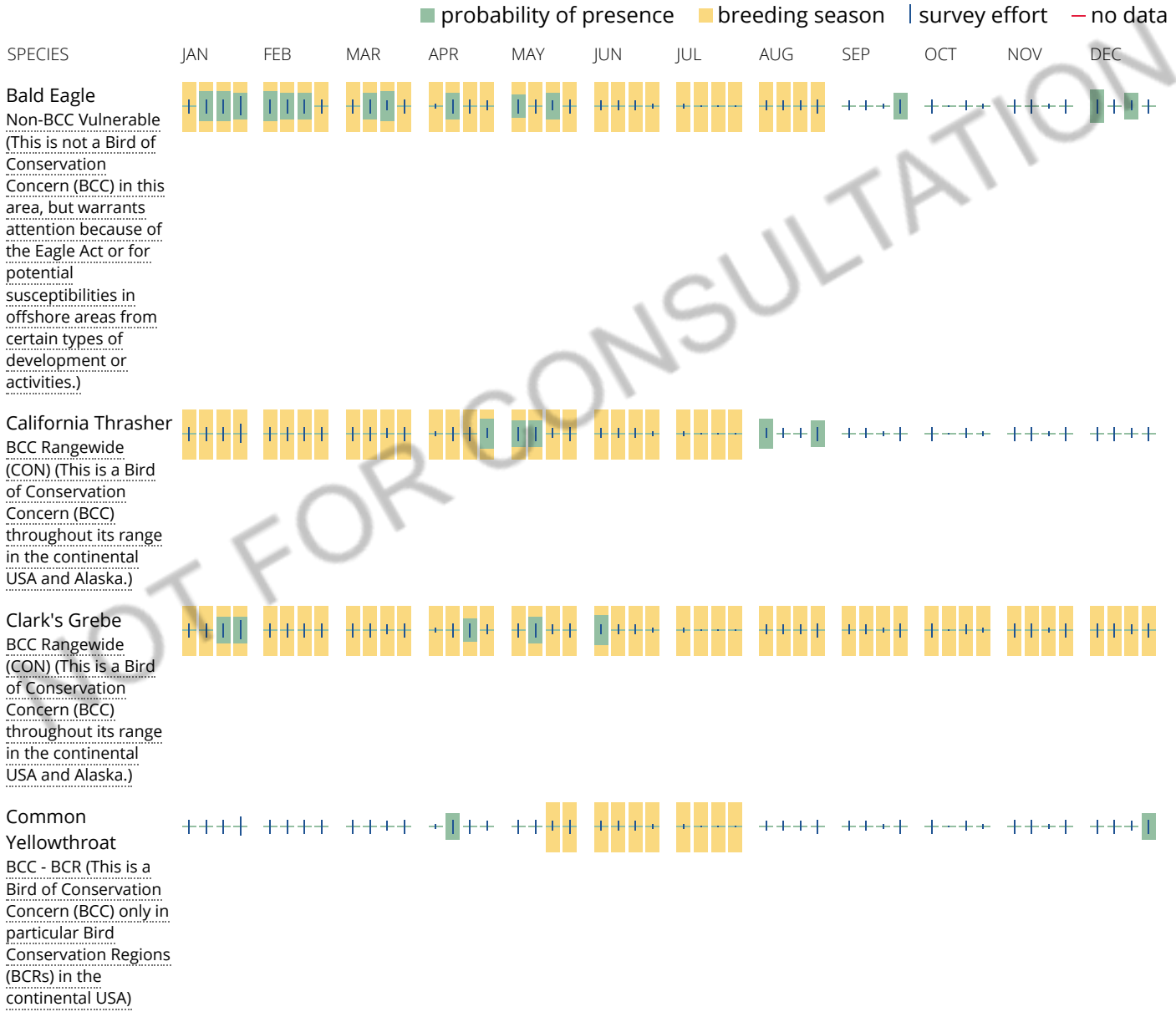
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

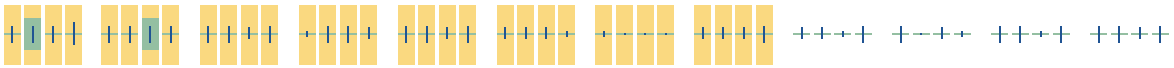
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

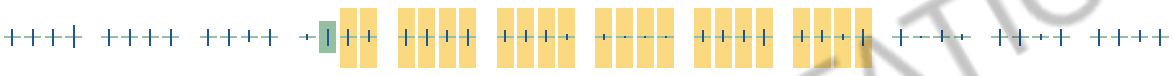


Costa's Hummingbird
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

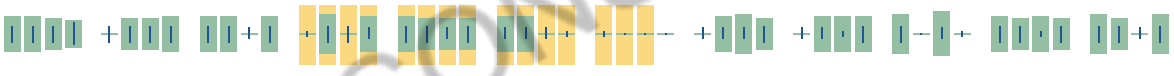
Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



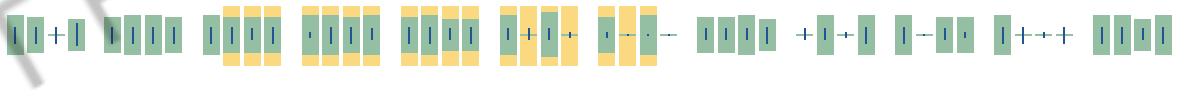
Lewis's Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

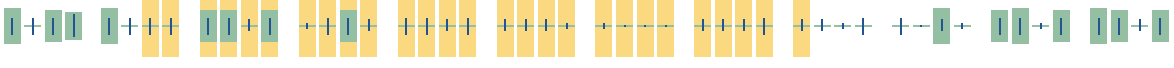


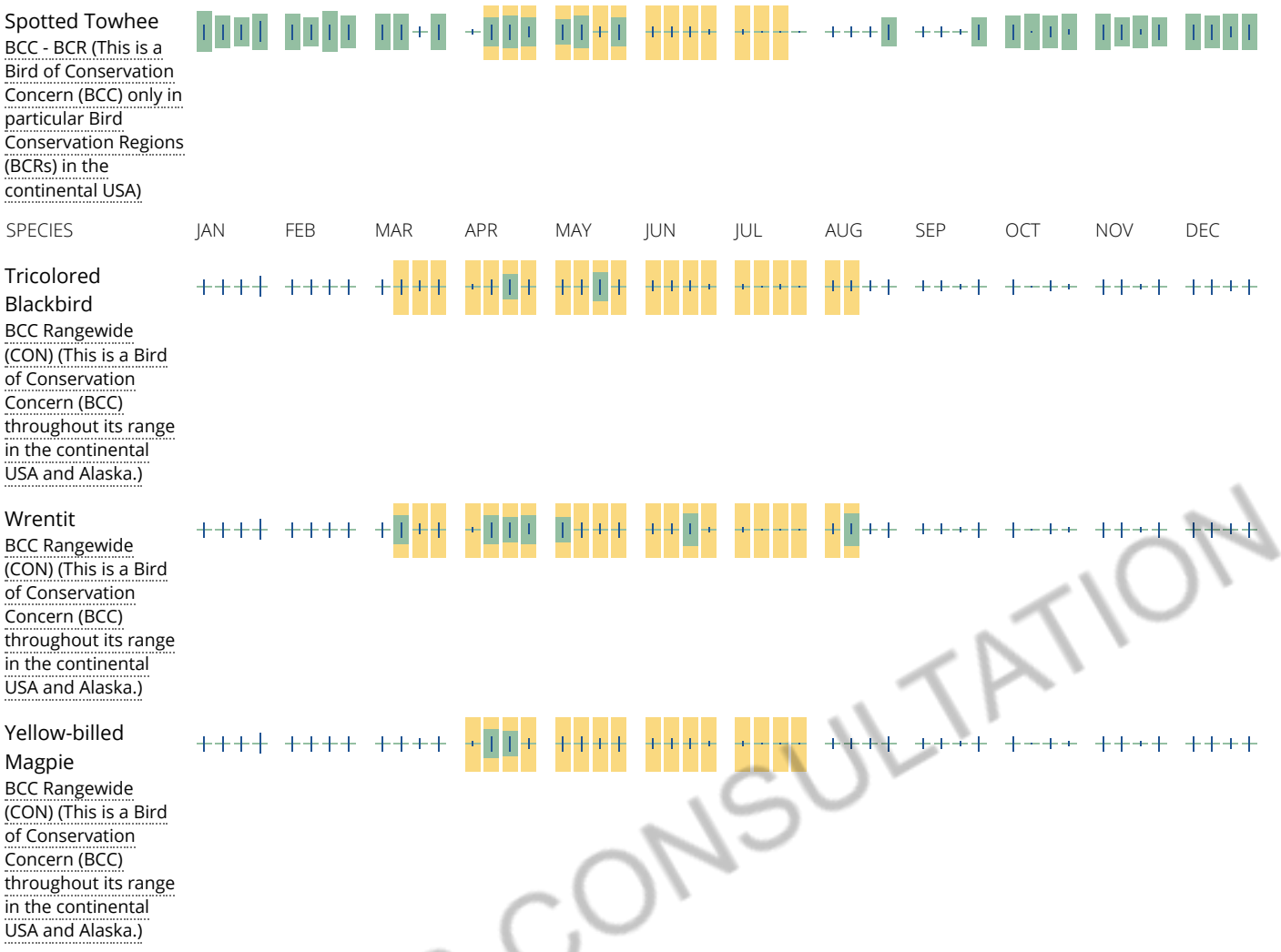
Oak Titmouse
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER POND

PUBK

RIVERINE

R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.